सिविल सेवा (प्रारंभिक) टेस्ट सीरीज़–2024

जब तक आपको यह परीक्षण पुस्तिका खोलने को न कहा जाए तब तक न खोलें

परीक्षण पुस्तिका अनुक्रम

Test Code: P1/P2/P3-2412

परीक्षण पुस्तिका

सामान्य अध्ययन

टेस्ट – 12

D

समय : दो घण्टे **पूर्णांक : 200**

अनुदेश

1. **परीक्षा प्रारम्भ होने के तुरन्त बाद, आप इस परीक्षण पुस्तिका की पड़ताल अवश्य कर लें कि इसमें कोई बिना छपा, फटा या छूटा हुआ पृष्ठ अथवा प्रश्न आदि न हो। यदि ऐसा हो तो इसे सही परीक्षण पुस्तिका से बदल लीजिए।**
2. **उत्तर-पत्रक में सही स्थान पर परीक्षण पुस्तिका अनुक्रम A, B, C या D यथास्थिति स्पष्ट रूप से कूटबद्ध कीजिये।**
3. इस पंक्ति के साथ में दिये गए कोष्ठक में आपको अपना अनुक्रमांक लिखना है। परीक्षण पुस्तिका पर **और कुछ न** लिखें।
4. इस परीक्षण पुस्तिका में **100** प्रश्नांश (प्रश्न) दिये गए हैं। प्रत्येक प्रश्नांश हिन्दी और अंग्रेज़ी में छपा है। प्रत्येक प्रश्नांश में चार प्रत्युत्तर (उत्तर) दिये गए हैं। इनमें से एक प्रत्युत्तर को चुन लें जिसे आप उत्तर-पत्रक पर अंकित करना चाहते हैं। यदि आपको ऐसा लगे कि एक से अधिक प्रत्युत्तर सही हैं तो उस प्रत्युत्तर को अंकित करें जो आपको सर्वोत्तम लगे। प्रत्येक प्रश्नांश के लिये केवल एक ही प्रत्युत्तर चुनना है।
5. आपको अपने सभी प्रत्युत्तर अलग से दिये गए उत्तर-पत्रक पर ही अंकित करने हैं। उत्तर-पत्रक में दिये गए निर्देश देख लें।
6. सभी प्रश्नों के अंक समान हैं।
7. इससे पहले कि आप परीक्षण पुस्तिका के विभिन्न प्रश्नांशों के प्रत्युत्तर उत्तर पत्रक पर अंकित करना शुरू करें, आपको प्रवेश प्रमाण-पत्र के साथ प्रेषित अनुदेशों के अनुसार कुछ विवरण उत्तर-पत्रक में देने हैं।
8. आप अपने सभी प्रत्युत्तरों को उत्तर-पत्रक में भरने के बाद तथा परीक्षा के समापन पर केवल उत्तर-पत्रक अधीक्षक को सौंप दें। आपको अपने साथ परीक्षण पुस्तिका ले जाने की अनुमति है।
9. कच्चे काम के लिये कुछ पत्रक परीक्षण पुस्तिका के अंत में संलग्न हैं।
10. **गलत उत्तरों के लिये दंड:**

वस्तुनिष्ठ प्रश्न-पत्रों में उम्मीदवार द्वारा दिये गए गलत उत्तरों के लिये दंड दिया जाएगा।

(i) प्रत्येक प्रश्न के लिये चार वैकल्पिक उत्तर हैं। उम्मीदवार द्वारा प्रत्येक प्रश्न के लिये दिये गए एक गलत उत्तर के लिये प्रश्न हेतु नियत किये गए अंकों का **एक-तिहाई** दंड के रूप में काटा जाएगा।

(ii) यदि कोई उम्मीदवार एक से अधिक उत्तर देता है, तो इसे **गलत उत्तर** माना जाएगा, चाहे दिये गए उत्तरों में से एक उत्तर सही हो, उस प्रश्न के लिये उपर्युक्तानुसार ही दंड दिया जाएगा।

(iii) यदि उम्मीदवार द्वारा कोई प्रश्न हल नहीं किया जाता है, अर्थात् उम्मीदवार द्वारा उत्तर नहीं दिया जाता है, तो उस प्रश्न के लिये **कोई दण्ड नहीं** दिया जाएगा।

जब तक आपको यह परीक्षण पुस्तिका खोलने को न कहा जाए तब तक न खोलें

***ध्यान दें :* अनुदेशों का अंग्रेज़ी रूपान्तर इस पुस्तिका के अंतिम पृष्ठ पर छपा है।**

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1. एक सींग वाले गैंडों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. ये प्राकृतिक रूप से केवल भारत में पाए जाते हैं।
2. इन्हें IUCN की लाल सूची में 'सुभेद्य' के रूप में सूचीबद्ध किया गया है।
3. यह भारत में प्राकृतिक रूप से पाई जाने वाली गैंडे की एकमात्र प्रजाति है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

2. भारत के प्रायद्वीपीय खंडों के संबंध में निम्नलिखित कथनों पर विचार कीजिये:

1. इस खंड में मुख्यत: प्राचीन क्रिस्टलीय शैलें हैं।
2. हिमालय क्षेत्र की तुलना में अपेक्षाकृत कम विवर्तनिक गतिविधियाँ इसकी विशेषता है।
3. मेघालय पठार खंड की पूर्वोत्तर सीमा को चिह्नित करता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

3. उत्तर भारत में दून और दुआर स्थलाकृतियों के संबंध में निम्नलिखित कथनों पर विचार कीजिये:

1. हिमालय के गिरिपाद में स्थित निचले स्तर के जलोढ़ मैदान दून स्थलाकृतियों की विशेषता हैं।
2. दुआर स्थलाकृतियाँ उच्च हिमालयी क्षेत्रों में स्थित हैं, जिनका उपयोग मुख्य रूप से कृषि के लिये किया जाता है, ये मूलत: हिमालय के उत्तर-पश्चिमी भागों में पाई जाती हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

4. निम्नलिखित कथनों पर विचार कीजिये:

1. भारतीय मानक समय (IST) ग्रीनिच माध्य समय (GMT) से 6 घंटे 30 मिनट पीछे है।
2. स्वतंत्रता पूर्व भारत तीन प्रमुख टाइम ज़ोन का पालन करता था।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

5. विशेष रूप से कमज़ोर जनजातीय समूहों (PVTGs) के संबंध में, निम्नलिखित कथनों पर विचार कीजिये:

1. मध्य प्रदेश में नामित विशेष रूप से कमज़ोर जनजातीय समूहों (PVTGs) की संख्या सबसे अधिक है।
2. भारत में कुल 75 नामित PVTG हैं।
3. पंजाब और हरियाणा में नामित PVTG की संख्या नगण्य है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2 और 3
(c) केवल 1 और 2
(d) 1, 2 और 3

6. वैनेडियम तत्त्व के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसका उपयोग लौह इस्पात उद्योग और विमानन उद्योग में किया जाता है।
2. यह अच्छी संरचनात्मक क्षमता वाली एक संक्रमण धातु है।
3. भारत में प्रचुर मात्रा में उत्पादन होने के कारण इसका आयात नहीं किया जाता।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

7. स्वेज़ नहर के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह एक प्राकृतिक समुद्र-स्तरीय जलमार्ग है।
2. यह भूमध्य सागर और काला सागर को जोड़ता है।
3. यह मिस्र और सऊदी अरब के बीच स्थित है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई भी नहीं

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1. With reference to Greater one horned rhino, consider the following statements:

1. They are found naturally only in India.
2. They are listed as 'Vulnerable' in the red list of IUCN.
3. It is the only rhino species found naturally in India.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

2. Consider the following statements about the Peninsular Block of India:

1. The Block primarily consists of ancient crystalline rocks.
2. It is characterized by relatively fewer tectonic activities compared to the Himalayan region.
3. Meghalaya plateau marks the Northeastern boundary of the block.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

3. Consider the following statements about the Dun and Duar formations in Northern India:

1. Dun formations are characterized by low-lying alluvial plains mostly located along the foothills of Himalayas.
2. Duar formations are situated in the higher regions of the Himalayas, primarily used for agriculture mostly found in Northwestern parts of Himalayas

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

4. Consider the following statements:

1. The Indian Standard Time (IST) is 6 hours 30 minutes behind Greenwich Mean Time (GMT).
2. Before independence, India followed three major time zones.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

5. With reference to Particularly Vulnerable Tribal Groups (PVTGs), consider the following statements:

1. Madhya Pradesh has the maximum number of designated PVTGs.
2. There is a total of 75 designated PVTGs in India.
3. Punjab and Haryana do not have any designated PVTGs.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

6. With reference to the element Vanadium, consider the following statements:

1. It is used in Iron-steel industry and Aerospace industry.
2. It is a transition metal with good structural strength.
3. India is self-sufficient in its production and does not import any of it.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

7. With reference to Suez Canal, consider the following statements:

1. The canal is a natural sea-level waterway.
2. It connects the Mediterranean Sea and the Black Sea.
3. It is located between Egypt and Saudi Arabia.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

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8. निम्नलिखित युग्मों पर विचार कीजिये:

खनन क्षेत्र		*खनिज*
1. ग्रीनबुश, ऑस्ट्रेलिया	:	लिथियम
2. रूर, जर्मनी	:	यूरेनियम
3. चुक्विकामाता, चिली	:	ताँबा

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

9. समुद्री जल के उत्प्रवाह के संबंध में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह जल धाराओं द्वारा गर्म जल को महासागरीय सतह पर लाने की प्रक्रिया हैं।
2. यह समुद्री पारिस्थितिक तंत्र में जैविक उत्पादकता में वृद्धि करने में मदद कर सकती है।
3. यह पवनों और पृथ्वी के घूर्णन के परिणामत: घटित होता है।
4. तटीय उत्प्रवाह समुद्री शैवाल और प्लवक की वृद्धि को नष्ट कर देती है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) केवल तीन *(d)* सभी चार

10. भारत में पत्तनों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. मुंबई एक प्राकृतिक पत्तन और भारत का सबसे बड़ा बंदरगाह है।
2. कोलकाता पत्तन भारत का एकमात्र प्रमुख नदी पत्तन है।
3. ढुलाई की मात्रा के आधार पर कांडला पत्तन सबसे बड़ा पत्तन है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

11. द्ज़ूकू घाटी निम्नलिखित में से किस राज्य के बीच स्थित है?

(a) असम और अरुणाचल प्रदेश
(b) नगालैंड और मणिपुर
(c) हिमाचल प्रदेश और उत्तराखंड
(d) मिज़ोरम और नागालैंड

12. निम्नलिखित युग्मों पर विचार कीजिये:

नदी		*शहर*
1. नर्मदा	:	जबलपुर
2. कावेरी	:	हैदराबाद
3. कृष्णा	:	विजयवाडा
4. यमुना	:	मथुरा

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?

(a) केवल एक
(b) केवल दो
(c) केवल तीन
(d) सभी चार

13. वृद्धिशील पूंजी-उत्पादन अनुपात (ICOR) क्या है?

(a) किसी दिये गए वर्ष में कुल पूंजी निवेश और कुल लाभ का अनुपात।
(b) किसी दिये गए वर्ष में कुल पूंजी निवेश और कुल श्रम बल का अनुपात।
(c) किसी दिये गए वर्ष में उत्पादन की अतिरिक्त इकाई में वृद्धि के लिये अतिरिक्त पूंजी निवेश का अनुपात।
(d) किसी दिये गए वर्ष में कुल श्रम बल और कुल उत्पादन का अनुपात।

14. भारतीय अर्थव्यवस्था के संदर्भ में, 'इम्पॉसिबल ट्रिनिटी' पद का क्या तात्पर्य है?

(a) बजट को संतुलित करने, राजकोषीय स्थायित्व प्राप्त करने और ऋण में कमी लाने की चुनौती।
(b) एक ही समय में निश्चित विनिमय दर, स्वतंत्र मौद्रिक नीति और पूंजी गतिशीलता की अवधारणा।
(c) आर्थिक विकास को बढ़ावा देते हुए मुद्रास्फीति और गैर-निष्पादित परिसंपत्तियों को नियंत्रित करने में सरकार की असमर्थता।
(d) आय असमानता, बेरोज़गारी तथा आर्थिक विकास के बीच समझौता।

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8. Consider the following pairs:

Mining region		*Mineral*
1. Greenbushes, Australia	:	Lithium
2. Ruhr, Germany	:	Uranium
3. Chuquicamata, Chile	:	Copper

How many of the above pairs are correctly matched?

(a) Only one *(b)* Only two
(c) All three *(d)* None

9. Consider the following statements about upwelling of sea water:

1. It is a process in which currents bring warm water to the surface of the ocean.
2. It can lead to increased biological productivity in marine ecosystems.
3. It is a result of winds and the rotation of the Earth.
4. Coastal upwelling destroys the growth of seaweed and plankton.

How many of the statements given above are correct?

(a) Only one *(b)* Only two
(c) Only three *(d)* All four

10. With reference to ports in India, consider the following statements:

1. Mumbai port is the largest natural port and harbor in India.
2. Kolkata port is India's only major riverine port.
3. Kandla port is the largest port by volume of cargo handled.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

11. Dzukou Valley is located between which of the following states?

(a) Assam and Arunachal Pradesh
(b) Nagaland and Manipur
(c) Himachal Pradesh and Uttarakhand
(d) Mizoram and Nagaland

12. Consider the following pairs:

River		*City*
1. Narmada	:	Jabalpur
2. Kaveri	:	Hyderabad
3. Krishna	:	Vijaywada
4. Yamuna	:	Mathura

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) Only three
(d) All four

13. What is the Incremental Capital Output Ratio (ICOR)?

(a) The ratio of total capital investment to total profit produced in a given year.
(b) The ratio of total capital investment to total labor force in a given year.
(c) The ratio of additional capital investment to the increase in additional unit of output in a given year.
(d) The ratio of total labor force to total output in a given year.

14. What does the term 'Impossible Trinity' refers to in the context of Indian economy?

(a) The challenge of balancing the budget, achieving fiscal sustainability and debt reduction.
(b) The concept of simultaneously having a fixed exchange rate, independent monetary policy, and capital mobility.
(c) The government's inability to control inflation and non-performing assets while promoting economic growth.
(d) The trade-off between income inequality, unemployment and economic growth.

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15. निम्नलिखित खुदरा भुगतान और निपटान प्रणालियों पर विचार कीजिये:

1. तत्काल भुगतान सेवा (IMPS)
2. नेशनल ऑटोमेटेड क्लीयरिंग हाउस (NACH)
3. फास्टैग रिचार्ज़
4. भारतीय डाक भुगतान बैंक
5. एकीकृत भुगतान इंटरफेस (UPI)
6. नेशनल फाइनेंसियल स्विच (NFS)

उपर्युक्त में से कितने भारतीय राष्ट्रीय भुगतान निगम की पहलें हैं?

(a) केवल दो *(b)* केवल तीन
(c) केवल चार *(d)* केवल पाँच

16. निम्नलिखित पर विचार कीजिये:

1. किसी पादप को कीटों के प्रति प्रतिरोधी बनाने के लिये आनुवंशिक रूप से संशोधित करने की एक विधि।
2. मानव की क्लोनिंग से जुड़ा एक आविष्कार
3. शतरंज खेलने की विधि
4. साहित्यिक कार्य
5. शैवाल की खेती की एक विधि
6. कैंसर की नई दवा का आविष्कार

उपर्युक्त में से कितने भारतीय पेटेंट अधिनियम, 1970 के तहत पेटेंट योग्य हैं?

(a) केवल दो *(b)* केवल तीन
(c) केवल चार *(d)* केवल पाँच

17. भारत में औषधि क्षेत्र के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. राष्ट्रीय औषधि मूल्य निर्धारण प्राधिकरण (NPPA) नई औषधियों के अनुमोदन और दवाओं के लिये मानक निर्धारित करने हेतु ज़िम्मेदार है।
2. केंद्रीय औषधि मानक नियंत्रण संगठन (CDSCO) देश में आयातित दवाओं की गुणवत्ता और भारत में नैदानिक परीक्षणों पर नियंत्रण रखता है।
3. राष्ट्रीय औषधि मूल्य निर्धारण प्राधिकरण (NPPA) और केंद्रीय औषधि मानक नियंत्रण संगठन (CDSCO) दोनों स्वास्थ्य और परिवार कल्याण मंत्रालय के नियंत्रण में आते हैं।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

18. निम्नलिखित में से कौन-सा 'टोबिन टैक्स' का प्राथमिक उद्देश्य है?

(a) अंतर्राष्ट्रीय व्यापार और आर्थिक विकास को प्रोत्साहित करना।
(b) वित्तीय विनिमय के माध्यम से जलवायु परिवर्तन का समाधान करना।
(c) कल्पित मुद्रा व्यापार और विनिमय दर की अस्थिरता को कम करना।
(d) विलासिता की वस्तुओं पर कर लगाकर आय समानता को बढ़ावा देना।

19. विदेशी निवेश सुविधा पोर्टल (FIFP) के संदर्भ में निम्नलिखित कथन पर विचार कीजिये:

1. यह निवेशकों के लिये विदेशी पोर्टफोलियो निवेश की सुविधा हेतु भारत सरकार का एक ऑनलाइन एकल बिंदु अंतराफलक है।
2. यह स्वचालित मार्ग से निवेश के लिये एक निकासी पोर्टल है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

20. निम्नलिखित में से कौन-सा "इंटरनेट ऑफ बिहेवियर" का सर्वोत्तम वर्णन करता है?

(a) यह एक पद है जिसका उपयोग व्यक्तियों के ऑनलाइन व्यवहार की निगरानी और विश्लेषण करने के अभ्यास का वर्णन करने के लिये किया जाता है।
(b) यह इंटरनेट और भौतिक उपकरणों के बीच संबंध का प्रतिनिधित्व करता है, जो घरेलू उपकरणों के रिमोट कंट्रोल की अनुमति देता है।
(c) यह एक अवधारणा है जिसमें अंतर्दृष्टि प्राप्त करने के लिये व्यक्तियों के ऑनलाइन और ऑफलाइन व्यवहार पर नज़र रखना एवं उनका विश्लेषण करना शामिल है।
(d) यह नैतिक इंटरनेट उपयोग और व्यवहार के लिये दिशानिर्देशों एवं विनियमों के एक समुच्चय को संदर्भित करता है।

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15. Consider the following retail payment and settlement systems:

1. Immediate Payment Service (IMPS)
2. National Automated Clearing House (NACH)
3. FASTag Recharge
4. Indian Post Payment Banks
5. Unified Payments Interface (UPI)
6. National Financial Switch (NFS)

How many of the above are initiative of National Payment Corporation of India?

(a) Only two *(b)* Only three
(c) Only four *(d)* Only five

16. Consider the following:

1. A method for genetically modifying a plant to be resistant to pests.
2. An invention related to cloning of humans
3. Method for playing chess
4. Literary works
5. A method of algae cultivation
6. Invention of new medicine for Cancer

How many of the above are patentable under Indian Patent Act, 1970?

(a) Only two *(b)* Only three
(c) Only four *(d)* Only five

17. Consider the following statements with reference to pharmaceutical regime in India:

1. National Pharmaceutical Pricing Authority (NPPA) is responsible for approval of new drugs and laying down the standards for Drugs.
2. The Central Drugs Standard Control Organization (CDSCO) control over the quality of imported Drugs in the country and clinical trials in India.
3. National Pharmaceutical Pricing Authority (NPPA) and Central Drugs Standard Control Organization (CDSCO) both come under the control of Ministry of Health & Family Welfare.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

18. Which of the following is the primary objective of the 'Tobin tax'?

(a) To encourage international trade and economic growth.
(b) To address climate change through financial transactions.
(c) To reduce speculative currency trading and exchange rate volatility.
(d) To promote income equality by taxing luxury goods.

19. Consider the following statements with reference to Foreign Investment Facilitation Portal (FIFP):

1. It is an online single point interface of the Government of India for investors to facilitate Foreign Portfolio Investments.
2. It is a clearance portal for investment through automatic route.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

20. Which of the following best describes "Internet of Behaviour"?

(a) It is a term used to describe the practice of monitoring and analysing the online behaviour of individuals.
(b) It represents the connection between the internet and physical devices, allowing for remote control of household appliances.
(c) It is a concept that involves tracking and analysing individuals' online and offline behaviours to gain insights.
(d) It refers to a set of guidelines and regulations for ethical internet usage and behaviour.

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21. अंतरिक्ष संवहनीयता के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह शांतिपूर्ण उद्देश्यों के लिये बाह्य अंतरिक्ष और उसके पर्यावरण के दीर्घकालिक उपयोग को सुनिश्चित करने की प्रथा है।
2. स्पेस सस्टेनेबिलिटी रेटिंग की अवधारणा नासा (NASA) द्वारा विकसित की गई है।
3. संयुक्त राष्ट्र की एक समिति अंतरिक्ष संवहनीयता को बनाए रखने के लिये दिशानिर्देश और सिद्धांत प्रदान करती है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

22. वर्चुअल प्राइवेट नेटवर्क (VPN) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसका उपयोग इंटरनेट पर सुरक्षित और एन्क्रिप्टेड कनेक्शन स्थापित करने के लिये किया जा सकता है।
2. यह उपयोगकर्त्ताओं को दूरस्थ संसाधनों तक पहुँच बनाने में सक्षम बनाता है यदि वे एक ही स्थानीय नेटवर्क पर हों।
3. इसका उपयोग विशेष रूप से व्यवसायों और संगठनों द्वारा किया जाता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

23. रेडियो फ्रीक्वेंसी आइडेंटिफिकेशन (RFID) और नियर फील्ड कम्युनिकेशन (NFC) के बीच मुख्य अंतर क्या है?

(a) RFID कम दूरी के बेतार संचार का उपयोग करता है, जबकि NFC लंबी दूरी की रेडियो तरंगों पर निर्भर करता है।
(b) RFID का उपयोग मुख्य रूप से संपर्क रहित भुगतान के लिये किया जाता है, जबकि NFC इन्वेंट्री ट्रैकिंग और लॉजिस्टिक्स पर केंद्रित है।
(c) NFC उपकरणों के बीच दो-तरफा संचार की अनुमति देता है, जबकि RFID एकदिशीय है।
(d) RFID एक प्रकार की निष्क्रिय तकनीक है, जबकि NFC एक सक्रिय तकनीक है।

24. खगोल भौतिकी की एक घटना, गुरुत्वाकर्षण लेंसिंग के संबंध में, निम्नलिखित में से कौन-सा कथन सही है?

(a) गुरुत्वाकर्षण लेंसिंग मुख्य रूप से विशाल वस्तुओं के बीच विद्युत चुंबकीय संपर्क का परिणाम है।
(b) गुरुत्वाकर्षण लेंसिंग केवल तब होती है जब प्रकाश खाली स्थान से गुजरता है जहाँ कोई पदार्थ मौजूद नहीं होता है।
(c) गुरुत्वाकर्षण लेंसिंग एक विशुद्ध सैद्धांतिक अवधारणा है और इसे ब्रह्मांड में नहीं देखा गया है।
(d) गुरुत्वाकर्षण लेंसिंग के कारण प्रकाश जब विशाल पिंडों के निकट से गुजरता है तो उनके गुरुत्वाकर्षण क्षेत्र के कारण मुड़ जाता है।

25. दोहरा क्षुद्रग्रह पुनर्निर्देशन परीक्षण (DART), ऐसी प्रौद्योगिकी का परीक्षण करने वाला विश्व का पहला पूर्ण-स्तरीय मिशन है, जो कि पृथ्वी को संरक्षित करता है

(a) क्षुद्रग्रह और धूमकेतु से
(b) केवल क्षुद्रग्रह से
(c) केवल धूमकेतु से
(d) पृथ्वी के टकराने वाले रॉकेट और उपग्रहों के मलबे से

26. पॉलीनीज़, एज़ोल्स, एलिलैमाइन्स और इचिनोकैंडिन्स हैं

(a) वर्तमान में उपलब्ध कवकीय रोधी औषधियों की श्रेणियाँ
(b) नाइट्रोजन स्थिरीकरण के लिये उपयोगी शैवाल प्रजातियाँ
(c) कंघी, बोतलों और पाइपों में उपयोग किये जाने वाले विभिन्न प्रकार के थर्मोप्लास्टिक्स
(d) प्रसंस्कृत भोजन में परिरक्षक

27. निम्नलिखित में से कौन-सा संगठन वैश्विक रोगाणुरोधी प्रतिरोध और उपयोग निगरानी प्रणाली (ग्लास) रिपोर्ट प्रकाशित करता है?

(a) विश्व स्वास्थ्य संगठन
(b) संयुक्त राष्ट्र पर्यावरण कार्यक्रम
(c) वैश्विक कल्याण संस्थान
(d) कार्यस्थल स्वास्थ्य संवर्द्धन के लिये यूरोपीय नेटवर्क

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21. With reference to Space Sustainability, consider the following statements:

1. It is the practice to ensure the long-term use of outer space and its environment for peaceful purposes.
2. The concept of Space Sustainability Rating is developed by NASA.
3. A committee of United Nations provides guidelines and principles for maintaining space sustainability.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

22. With reference to Virtual Private Network (VPN), consider the following statements:

1. It can be used to establish secure and encrypted connections over the internet.
2. It enables users to access remote resources as if they were on the same local network.
3. It is exclusively used by businesses and organizations.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

23. What is the key difference between Radio Frequency Identification (RFID) and Near Field Communication (NFC)?

(a) RFID uses short-range wireless communication, while NFC relies on long-range radio waves.
(b) RFID is primarily used for contactless payments, while NFC is focused on inventory tracking and logistics.
(c) NFC allows two-way communication between devices, while RFID is unidirectional.
(d) RFID is a type of passive technology, while NFC is an active technology.

24. Which of the following statements is correct with regard to gravitational lensing, a phenomenon in astrophysics?

(a) Gravitational lensing is primarily a result of electromagnetic interactions between massive objects.
(b) Gravitational lensing only occurs when light passes through empty space with no matter present.
(c) Gravitational lensing is a purely theoretical concept and has not been observed in the universe.
(d) Gravitational lensing causes the bending of light as it passes near massive objects due to their gravitational field.

25. Double Asteroid Redirection Test (DART), the world's first full-scale mission to test technology for defending Earth against

(a) Asteroid and Comets
(b) Asteroid only
(c) Comets only
(d) Debris of rockets and satellites colliding with Earth.

26. Polyenes, azoles, allylamines and echinocandins are

(a) classes of antifungal medicines currently available
(b) algae species useful for fixing nitrogen
(c) variety of thermoplastics used in comb, bottles and pipes
(d) preservatives in processed food

27. Which of the following organisation publish the Global Antimicrobial Resistance and Use Surveillance System (GLASS) report?

(a) World Health Organisation
(b) United Nation Environment Programme
(c) Global Wellness Institute
(d) European Network for Workplace Health Promotion

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28. DNA और mRNA वैक्सीन के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. DNA टीकों का उत्पादन करना आसान और अधिक किफायती है एवं RNA टीकों के विपरीत, ये कक्ष ताप पर स्थिर होते हैं।
2. आनुवंशिक उत्परिवर्तन के संभावित ज़ोखिम के कारण भारत ने किसी भी DNA वैक्सीन को अधिकृत नहीं किया है जबकि mRNA के उपयोग की अनुमति है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

29. भारतीय खाद्य संरक्षा और मानक प्राधिकरण (FSSAI) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह एक सांविधिक निकाय है जो खाद्य प्रसंस्करण उद्योग मंत्रालय के अंतर्गत आता है।
2. इसे गरिष्ठ भोजन के लिये नियम बनाने की शक्ति प्राप्त है।
3. इसे खाद्य संरक्षा और मानकों से संबंधित विधियों के कार्यान्वयन के साथ-साथ कृषि और प्रसंस्कृत खाद्य निर्यात की ज़िम्मेदारी सौंपी गई है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

30. निम्नलिखित पर विचार कीजिये:

1. अधिकांश सरीसृप असमतापी होते हैं।
2. कुछ स्तनधारी अंडप्रजक होते हैं।
3. सभी उभयचर ग्रीष्म निष्क्रियता से गुजरते हैं।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

31. निम्नलिखित पर विचार कीजिये:

1. जैव-हाइड्रोजन और जैव-तेल का उत्पादन
2. औषध और सौंदर्य प्रसाधनों में जैव सक्रिय यौगिक
3. वायुमंडलीय नाइट्रोजन स्थिरीकरण करने में सक्षम
4. कार्बन डाइऑक्साइड और नाइट्रोजन ऑक्साइड के शमनकर्त्ता के रूप में

उपर्युक्त में से कितने शैवाल के संभावित अनुप्रयोग हैं?

(a) केवल एक *(b)* केवल दो
(c) केवल तीन *(d)* सभी चार

32. करी पत्ते के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह पौधा केवल भारत का ही स्वदेशी पौधा है।
2. करी पत्ते के पौधे में प्रतिऑक्सीकारक गुण होते हैं।
3. पौधा छोटे सफेद फूल उत्पन्न करता है जो स्वयं परागण कर सकते हैं।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

33. कदन्न के संदर्भ में, निम्नलिखित पर विचार कीजिये:

1. इसके प्रोटीन लाइसिन के अच्छे स्रोत हैं।
2. इनमें पोषण और आहारीय फाइबर की मात्रा अधिक होती है।
3. इनमें उच्च प्रतिऑक्सीकारक गुण होते हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 और 2 *(b)* केवल 2 और 3
(c) केवल 1 और 3 *(d)* 1, 2 और 3

34. निम्नलिखित पर विचार कीजिये:

1. बाज़ार तक पहुँच बढ़ाने, बाधाओं से निपटने और स्वच्छता एवं पादप स्वच्छता संबंधी मुद्दों से निपटने के लिये एक संस्थागत तंत्र प्रदान करना।
2. नवीन, स्वदेशी, जैविक, जातीय, पारंपरिक और गैर-पारंपरिक कृषि उत्पादों के निर्यात को बढ़ावा देना।
3. जल्दी खराब होने वाली वस्तुओं पर ध्यान देने सहित उच्च मूल्य और मूल्य वर्द्धित कृषि निर्यात को बढ़ावा देना।

उपर्युक्त में से कौन-से कृषि निर्यात नीति, 2018 के उद्देश्य हैं?

(a) केवल 1 और 2
(b) केवल 2 और 3
(c) केवल 1 और 3
(d) 1, 2 और 3

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28. Consider the following statements with reference to DNA and mRNA vaccine:

1. DNA vaccines are easier and more affordable to produce and unlike RNA vaccines, are stable at room temperature.
2. India has not authorized any of the DNA vaccine due to potential risk of genetic mutation while use of mRNA is permitted.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

29. Consider the following statements with reference to Food Safety and Standard Authority of India (FSSAI):

1. It is a statutory body that comes under the Ministry of food processing industries.
2. It is vested with the power to make regulations for fortified food.
3. It is entrusted with responsibility of agricultural and processed food export along with the implementation of laws relating to food safety and standards.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

30. Consider the following:

1. Most reptiles are cold blooded.
2. Some mammals are oviparous.
3. All amphibians undergo aestivation.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

31. Consider the following:

1. Production of bio-hydrogen and bio-oils
2. Bioactive compounds in Pharmaceuticals and Cosmetics
3. Capable of fixing atmospheric nitrogen
4. Act as quenchers of carbon dioxide and nitrogen oxides

How many of the above are the potential applications of algae?

(a) Only one *(b)* Only two
(c) Only three *(d)* All four

32. Consider the following statements with reference to Curry Leaves:

1. This plant is indigenous to India only.
2. The curry leaves plant has antioxidants properties.
3. The plant produces small white flowers which can pollinate themselves.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

33. Consider the following with reference to millets:

1. Its proteins are good sources of lysine.
2. They are high in nutrition and dietary fiber.
3. They possess high antioxidant properties.

Which of the statements given above is/are correct?

(a) 1 and 2 only *(b)* 2 and 3 only
(c) 1 and 3 only *(d)* 1, 2 and 3

34. Consider the following statements:

1. To provide an institutional mechanism for pursuing market access, tackling barriers and deal with sanitary and phytosanitary issues.
2. To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.
3. To boost high value- and value-added agricultural exports including focus on perishables.

Which of the above are objectives of Agriculture Export policy, 2018?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

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35. MACS 1407 के संदर्भ में, निम्नलिखित पर विचार कीजिये:

1. यह भारतीय वैज्ञानिकों द्वारा विकसित सोयाबीन की एक उच्च उपज देने वाली कीट प्रतिरोधी किस्म है।
2. इस किस्म को आधुनिक कृत्रिम बुद्धिमत्ता तकनीकों का उपयोग करके विकसित किया गया था।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

36. भारत में दालों के उत्पादन के संदर्भ में, निम्नलिखित पर विचार कीजिये:

1. यह खाद्यान्न के अंतर्गत आने वाले क्षेत्र का लगभग 20% है।
2. रबी दालों का योगदान कुल उत्पादन में 60% से अधिक है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

37. यह मूलत: एक उष्णकटिबंधीय पौधा है, जो अधिकतर 20° उत्तर और 20° दक्षिण अक्षांशों के मध्य उगता है। इसकी वृद्धि और उपज के लिये आदर्श तापमान $27 \pm 5°$ C और आर्द्रता > 60 प्रतिशत होती है। यद्यपि, प्रति वर्ष लगभग 200 सेमी. की अच्छी वितरित वर्षा उचित विकास और उच्च उपज के लिये सर्वोत्तम है।

उपर्युक्त विशेषताएँ निम्नलिखित में से किसे सर्वोत्तम रूप से संदर्भित करती हैं?

(a) कपास *(b)* रबड़
(c) चाय *(d)* नारियल

38. निम्नलिखित पर विचार कीजिये:

1. शारीरिक/पोषणीय घनत्व कुल जनसंख्या और निवल कृषि योग्य क्षेत्र का अनुपात है।
2. कृषि घनत्व कुल कृषि जनसंख्या और निवल कृषि योग्य क्षेत्र का अनुपात है।
3. जनसंख्या घनत्व एक विशिष्ट भौगोलिक स्थान में किसी प्रजाति के भीतर व्यक्तियों/व्यष्टियों की सघनता है।

उपर्युक्त कथनों में से कौन-से सही हैं?

(a) केवल 1 और 2 *(b)* केवल 2 और 3
(c) केवल 1 और 3 *(d)* 1, 2 और 3

39. निम्नलिखित युग्मों पर विचार कीजिये:

नदी घाटी परियोजनाएँ		*नदियाँ*
1. नागार्जुन सागर	:	कृष्णा
2. हीराकुंड	:	महानदी
3. कोयना	:	कावेरी

उपर्युक्त युग्मों में से कितने सही सुमेलित हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

40. खनिजों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. ज़िम्बाब्वे के बाद भारत के पास विश्व का दूसरा सबसे बड़ा मैंगनीज़ अयस्क भंडार है।
2. अभ्रक का उपयोग मुख्य रूप से विद्युत एवं इलेक्ट्रॉनिक उद्योगों में किया जाता है।
3. सीमेंट अधात्विक खनिजों का मिश्रण है।
4. कच्चा पेट्रोलियम तृतीय कल्प (Tertiary Period) के अवसादी शैलों में पाया जाता है।

उपर्युक्त कथनों में से कौन-से सही हैं?

(a) केवल 1, 2 और 3 *(b)* केवल 1, 2 और 4
(c) केवल 3 और 4 *(d)* 1, 2, 3 और 4

41. निम्नलिखित कथनों पर विचार कीजिये:

1. वृक्ष आवरण से तात्पर्य भूमि के कुल क्षेत्रफल से है जो वृक्षों से आच्छादित है, भले ही वृक्ष वन पारिस्थितिकी तंत्र का हिस्सा हों या नहीं।
2. राज्य वनों की अपनी परिभाषा निर्धारित करने के लिये ज़िम्मेदार हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

42. निम्नलिखित कथनों पर विचार कीजिये:

1. भारत में निर्मित पहली पाइपलाइन नाहरकटिया-नुनमती-बरौनी पाइपलाइन है।
2. विश्व की सबसे लंबी LPG पाइपलाइन जामनगर-लोनी LPG पाइपलाइन है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

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35. Consider the following with reference to MACS 1407:

1. It is a high-yielding and pest-resistant variety of soybean developed by Indian Scientists.
2. The variety was developed using modern artificial intelligence techniques.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

36. Consider the following with reference to pulses production in India:

1. It accounts for around 20% of the area under foodgrains.
2. Rabi pulses contribute more than 60% of the total production.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

37. It is essentially a tropical plant, growing mostly between 20° N and 20° S latitudes. The ideal temperature for growth and yield is 27 ± 5° C and humidity > 60 per cent. However, a well distributed rainfall of about 200 cm per year is the best for proper growth and higher yield.

The above characteristics best refers to which of the following?

(a) Cotton *(b)* Rubber
(c) Tea *(d)* Coconut

38. Consider the following:

1. Physiological density is ratio of total population and net cultivated area.
2. Agriculture density is the ratio of total agricultural population and net cultivable area.
3. Population density is the concentration of individuals within a species in a specific geographic locale.

Which of the statements given above are correct?

(a) 1 and 2 only *(b)* 2 and 3 only
(c) 1 and 3 only *(d)* 1, 2 and 3

39. Consider the following pairs:

River valley projects		*Rivers*
1. Nagarjuna Sagar	:	Krishna
2. Hirakud	:	Mahanadi
3. Koyna	:	Kaveri

How many of the above pairs are correctly matched?

(a) Only one *(b)* Only two
(c) All three *(d)* None

40. With reference to minerals, consider the following statements:

1. India has second largest manganese ore reserves in the world after Zimbabwe.
2. Mica is mainly used in the electrical and electronic industries.
3. Cement is a mixture of non-metallic minerals.
4. Crude petroleum occurs in sedimentary rocks of the tertiary period.

Which of the statements given above is/are correct?

(a) 1, 2 and 3 only *(b)* 1, 2 and 4 only
(c) 3 and 4 only *(d)* 1, 2, 3 and 4

41. Consider the following statements:

1. Tree cover refers to the total area of land that is covered by trees, regardless of whether or not the trees are part of a forest ecosystem.
2. States are responsible for determining their definition of forests.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

42. Consider the following statements:

1. The first pipeline constructed in India is Naharkatia-Nunmati-Barauni Pipeline.
2. The longest LPG pipeline in the world is Jamnagar –Loni LPG pipeline.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

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43. निम्नलिखित पर विचार कीजिये:

1. इस्पात का निर्माण
2. पीतल के बर्तन
3. स्नेहक
4. पेंसिल लीड

उपर्युक्त में से कौन-सा/से ग्रेफाइट का अनुप्रयोग है/हैं?

(a) 1, 2 और 3
(b) केवल 2 और 4
(c) केवल 4
(d) केवल 1, 3 और 4

44. निम्नलिखित पर विचार कीजिये:

1. आयकर के बाद दूरसंचार सरकार के लिये दूसरा सबसे अधिक राजस्व अर्जित करने वाला क्षेत्र है।
2. भारत वर्तमान में विश्व का तीसरा सबसे बड़ा दूरसंचार बाज़ार है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

45. मिशन काकतीय के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह राजस्थान सरकार का एक प्रमुख कार्यक्रम है जिसका उद्देश्य तालाबों और टैंकों जैसे जल के लघु सिंचाई स्रोतों का पुन:स्थापन करना है।
2. इसके तहत ग्राम सभा आयोजित की जाती है और प्रस्तावित योजनाओं पर ग्रामीणों के साथ चर्चा की जाती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

46. निम्नलिखित पर विचार कीजिये:

1. बैंकिंग
2. पर्यटन
3. सॉफ्टवेयर विकास
4. मत्स्यन

उपर्युक्त में से कौन-सा/से प्राथमिक उद्योग का उदाहरण है/हैं?

(a) 1, 2 और 3
(b) केवल 2 और 4
(c) केवल 4
(d) 1, 3 और 4

47. निम्नलिखित पर विचार कीजिये:

1. वन धन विकास योजना
2. जनजातियों के लिये तकनीक
3. TRIFOOD योजना
4. मध्याह्न भोजन योजना

उपर्युक्त में से किस पहल में भारतीय जनजातीय सहकारी विपणन विकास महासंघ (TRIFED) शामिल है?

(a) 1, 2 और 3
(b) केवल 2 और 4
(c) केवल 4
(d) 1, 3 और 4

48. आत्मनिर्भर भारत मिशन के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसका उद्देश्य सुरक्षा अनुपालन में सुधार करते हुए प्रतिस्थापन पर ध्यान केंद्रित करके आयात निर्भरता में कटौती करना है।
2. उम्मीद है कि यह मेक इन इंडिया पहल का पूरक होगा।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

49. इंडिया स्टैक सर्वोत्तम रूप से निम्नलिखित में से किसको संदर्भित करता है?

(a) ऐप्लीकेशन प्रोग्रामिंग इंटरफेस का समुच्चय जो नकदरहित सेवा वितरण की दिशा में भारत की कठिन समस्याओं का समाधान करता है।
(b) भारत में मौसम पूर्वानुमान के लिये एक फ्रेमवर्क प्रदान करने वाला डेटासेट।
(c) ग्रामीण भारतीय कृषि में अनाज भंडारण की एक पारंपरिक विधि।
(d) संरक्षण के लिये डिजिटलीकृत प्राचीन भारतीय पांडुलिपियों का संग्रह।

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43. Consider the following:

1. Making steel
2. Brassware
3. Lubricants
4. Pencil lead

Which of the above is/are applications of graphite?

(a) 1, 2 and 3
(b) 2 and 4 only
(c) 4 only
(d) 1, 3 and 4 only

44. Consider the following statements:

1. Telecom is the second highest revenue earner for the government, after income tax.
2. India is currently the world's third-largest telecommunications market.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

45. Consider the following with reference to Mission Kakatiya:

1. It is a flagship program under Rajasthan government aimed at restoring minor irrigation sources of water like ponds and tanks.
2. As part of it Gram Sabha is conducted, and the proposed plans are discussed with the villagers.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

46. Consider the following:

1. Banking
2. Tourism
3. Software development
4. Fishing

Which of the above is/are an example of a primary industry?

(a) 1, 2 and 3 *(b)* 2 and 4 only
(c) 4 only *(d)* 1, 3 and 4

47. Consider the following:

1. Van Dhan Vikas Yojana
2. Tech for Tribals
3. TRIFOOD Scheme
4. Mid-day Meal scheme

In which of the above initiatives Tribal Cooperative Marketing Development Federation of India (TRIFED) is involved?

(a) 1, 2 and 3
(b) 2 and 4 only
(c) 4 only
(d) 1, 3 and 4

48. With reference to Self-Reliant India Mission, consider the following statements:

1. It aims to cut down import dependence by focusing on substitution while improving safety compliance.
2. It is expected to complement Make in India initiative.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

49. India stack best refers to which of the following?

(a) Set of application programming interface that solves India's hard problems towards cashless service delivery.
(b) Dataset to provide a framework for weather forecasting in India.
(c) A traditional method of storing grain in rural Indian agriculture.
(d) A collection of ancient Indian manuscripts digitized for preservation.

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50. भारत के संविधान के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. किसी भी उच्च न्यायालय को किसी केंद्रीय विधि को संवैधानिक रूप से अमान्य घोषित करने का अधिकार नहीं होगा।
2. भारत के संविधान में संशोधन पर भारत के सर्वोच्च न्यायालय द्वारा प्रश्न नहीं उठाया जा सकता है।
3. मूल अधिकारों और राज्य की नीति के निदेशक तत्व के बीच सामंजस्य संविधान की मूलभूत संरचना की विशेषताओं में से एक है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

51. वर्ष 1992 के 73वें संशोधन अधिनियम के संबंध में, निम्नलिखित कथनों पर विचार कीजिये:

1. इस अधिनियम ने संविधान के अनुच्छेद 40 को व्यावहारिक रूप दिया है।
2. यह अधिनियम राज्य विधानमंडल को पिछड़े वर्गों के पक्ष में आरक्षण का प्रावधान करने के लिये अधिकृत करता है।
3. प्रत्येक पाँच वर्ष के बाद राज्य वित्त आयोग का गठन अधिनियम में एक स्वैच्छिक प्रावधान है।
4. यह राज्य के राज्यपाल को खातों की लेखापरीक्षा और रखरखाव के संबंध में प्रावधान करने का अधिकार देता है।

नीचे दिये गए कूट का प्रयोग कर सही उत्तर चुनिये:

(a) 1 और 2 *(b)* 2 और 4
(c) 1 और 3 *(d)* 3 और 4

52. निम्नलिखित पर विचार कीजिये:

1. पोर्टेबिलिटी
2. विशिष्ट पहचान संख्या
3. इलेक्ट्रॉनिक लाभ अंतरण
4. पते का प्रमाण
5. नागरिकता का प्रमाण

उपर्युक्त में से कितनी आधार की प्रमुख विशेषताएँ हैं?

(a) केवल दो *(b)* केवल तीन
(c) केवल चार *(d)* सभी पाँच

53. निम्नलिखित कथनों पर विचार कीजिये:

1. 42वें संवैधानिक संशोधन अधिनियम के माध्यम से मंत्रिस्तरीय परामर्श को राज्यपाल के लिये बाध्यकारी बना दिया गया है।
2. राज्यपाल के पास मंत्रिपरिषद को बर्खास्त करने के संबंध में संवैधानिक विवेकाधिकार है, जब वह राज्य विधानसभा का विश्वास साबित नहीं कर सकते।
3. मृत्युदंड के मामले में राज्यपाल के पास क्षमादान की शक्ति नहीं है।
4. राज्यपाल धन विधेयक को राष्ट्रपति के विचार हेतु आरक्षित कर सकता है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक
(b) केवल दो
(c) केवल तीन
(d) सभी चार

54. अंतर्राष्ट्रीय कृषि विकास कोष (IFAD) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसका उद्देश्य समावेशन, समुत्थानशीलता और आघात-सह के माध्यम से ग्रामीण अर्थव्यवस्थाओं एवं खाद्य प्रणालियों को परिवर्तित करना है।
2. यह एक अंतर्राष्ट्रीय वित्तीय संस्थान है लेकिन संयुक्त राष्ट्र की कोई विशेष एजेंसी नहीं है।
3. हाल ही में, इसने अपने स्थायी बांड को लंदन स्टॉक एक्सचेंज में सूचीबद्ध किया है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई भी नहीं

55. हाल ही में जन समाचारों में रहा डाकार घोषणा-पत्र संबंधित है

(a) आर्द्रभूमि पुनर्स्थापन
(b) जल संरक्षण
(c) आपदा प्रबंधन
(d) सड़क सुरक्षा

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50. With reference to the Constitution of India, consider the following statements:

1. No High Court shall have the jurisdiction to declare any central law to be constitutionally invalid.
2. An amendment to the Constitution of India cannot be called into question by the Supreme Court of India.
3. Harmony between Fundamental Rights and Directive Principles of State Policies forms one of the features of basic structure of the constitution.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

51. Consider the following statements regarding 73rd amendment act of 1992:

1. The act has given a practical shape to Article 40 of the constitution.
2. The act authorizes the state legislature to make provision for reservation in favor of backward classes.
3. Constitution of a State Finance Commission after every five years is a voluntary provision in the act.
4. It empowers the governor of the state to make provisions with respect to auditing and maintenance of accounts.

Select the correct answer using the code given below:

(a) 1 and 2 *(b)* 2 and 4
(c) 1 and 3 *(d)* 3 and 4

52. Consider the following:

1. Portability
2. Unique identification number
3. Electronic benefit transfer
4. Proof of address
5. Proof of citizenship

How many of the above are key features of Aadhar?

(a) Only two *(b)* Only three
(c) Only four *(d)* All five

53. Consider the following statements:

1. The ministerial advice has been made binding on the Governor through 42nd constitutional amendment act.
2. The Governor has constitutional discretion regarding dismissal of the council of ministers, when it cannot prove the confidence of the state legislative assembly.
3. The Governor does not possess pardoning power in case of death sentence.
4. The Governor may reserve the money bill for the consideration of the president.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) Only three
(d) All four

54. With reference to International Fund for Agricultural Development (IFAD), consider the following statements:

1. Its objectives are to transform rural economies and food systems through inclusion, resilience and sustainability.
2. It is an international financial institution but not a specialized agency of United Nations.
3. Recently, it has listed its sustainable bonds on London Stock Exchange.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

55. Dakar Declaration recently seen in news is associated with

(a) Wetland Restoration
(b) Water Conservation
(c) Disaster Management
(d) Road Safety

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56. निम्नलिखित पर विचार कीजिये:

1. महासभा
2. सुरक्षा परिषद
3. न्यास परिषद
4. आर्थिक एवं सामाजिक परिषद
5. अंतर्राष्ट्रीय न्यायालय

उपर्युक्त में से कितने संयुक्त राष्ट्र के प्रमुख अंग हैं?

(a) केवल दो *(b)* केवल तीन
(c) केवल चार *(d)* सभी पाँच

57. निम्नलिखित देशों पर विचार कीजिये:

1. ईरान
2. सीरिया
3. जॉर्डन
4. कुवैत
5. बहरीन
6. सऊदी अरब

उपर्युक्त में से कितने देश इराक के साथ भूमि सीमा साझा करते हैं?

(a) केवल तीन *(b)* केवल चार
(c) केवल पाँच *(d)* सभी छह

58. भारत-नेपाल संबंध के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. भारत-नेपाल शांति और मित्रता संधि वर्ष 1950 द्विपक्षीय संबंधों का आधार बनती है, जो घनिष्ठ राजनीतिक, आर्थिक और सामरिक संबंधों को सुनिश्चित करती है।
2. कालापानी-लिंपियाधुरा-लिपुलेख क्षेत्र एक विवादास्पद मुद्दा रहा है, जिससे भारत और नेपाल के बीच राजनयिक तनाव उत्पन्न हो गया है।
3. पारगम्य सीमा भारत के लिये सुरक्षा जोखिम के रूप में हथियारों की तस्करी, आतंकवादी गतिविधियों और नकली भारतीय मुद्रा के प्रवाह को आसान बनाती है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

59. निम्नलिखित कथनों पर विचार कीजिये:

कथन-I:

संयुक्त राष्ट्र की एक विशेष एजेंसी के रूप में यूनेस्को शिक्षा, विज्ञान और संस्कृति में सहयोग को बढ़ावा देकर शांति और सुरक्षा में योगदान देता है।

कथन-II:

संयुक्त राष्ट्र की सदस्यता स्वचालित रूप से यूनेस्को में सदस्यता प्रदान करती है।

उपर्युक्त कथनों के संदर्भ में, निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की सही व्याख्या है।
(b) कथन-I और कथन-II दोनों सही हैं तथा कथन-II, कथन-I की सही व्याख्या नहीं है।
(c) कथन-I सही है किंतु कथन-II गलत है।
(d) कथन-I गलत है किंतु कथन-II सही है।

60. निम्नलिखित कथनों पर विचार कीजिये:

1. अल्पकालिक हैलोजन वे गैसें होती हैं जिनमें क्लोरीन, ब्रोमीन या आयोडीन जैसे हैलोजन तत्त्व होते हैं जिनका जीवनकाल छह महीने से कम होता है।
2. सागरीय पादपप्लवक और शैवाल, साथ ही सागर और क्षोभमंडल के अजैविक घटक अल्पकालिक हैलोजन के महत्त्वपूर्ण स्रोत हैं।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

61. निम्नलिखित कथनों पर विचार कीजिये:

1. प्रथम सूचना रिपोर्ट (FIR) एक लिखित दस्तावेज़ है, जिसे पुलिस द्वारा तैयार किया जाता है जब उन्हें संज्ञेय अपराध के बारे में सूचना मिलती है।
2. आरोपपत्र एक औपचारिक पुलिस रिकॉर्ड को संदर्भित करता है, जिसमें हिरासत में लाए गए प्रत्येक व्यक्ति के नाम, आरोपों की प्रकृति और आरोप लगाने वालों की पहचान दर्शाई जाती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

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56. Consider the following:

1. General Assembly
2. Security Council
3. Trusteeship Council
4. Economic and Social Council
5. International Court of Justice

How many of the above are principal organs of the United Nations?

(a) Only two *(b)* Only three
(c) Only four *(d)* All five

57. Consider the following countries:

1. Iran
2. Syria
3. Jordan
4. Kuwait
5. Bahrain
6. Saudi Arabia

How many of the above-mentioned countries share a land border with Iraq?

(a) Only three *(b)* Only four
(c) Only five *(d)* All six

58. With reference to India-Nepal relation consider the following statements:

1. The India-Nepal Treaty of Peace and Friendship 1950 forms the bedrock of bilateral relations, ensuring close political, economic, and strategic ties.
2. The Kalapani-Limpiyadhura-Lipulekh region has been a contentious issue, leading to diplomatic tensions between India and Nepal.
3. Porous border facilitates arms smuggling, terrorist activities and flow of counterfeit Indian currency, as security risks to India.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

59. Consider the following statements:

Statement-I:

UNESCO as a specialised agency of United Nations contribute to peace and security by promoting cooperation in education, science and culture.

Statement-II:

Membership of United Nations automatically confer membership in UNESCO.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.

(c) Statement-I is correct but Statement-II is incorrect.

(d) Statement-I is incorrect but Statement-II is correct.

60. Consider the following statements:

1. Short lived halogens are gases that contain the halogen elements like chlorine, bromine, or iodine with a lifetime of less than six month.
2. Marine phytoplankton and algae, as well as abiotic components from ocean and troposphere are important sources for Short lived halogens.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

61. Consider the following statements:

1. First Information Report (FIR) is a written document prepared by police when they receive information about commission of cognizable offence.
2. Chargesheet refers to a formal police record showing the names of each person brought into custody, nature of accusations and identity of accusers.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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62. वन्यजीव संरक्षण बॉण्ड (WCB) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसे दक्षिण अफ्रीका में काले गैंडों की आबादी को संरक्षण करने और वृद्धि करने के लिये जारी किया गया है।
2. यह एक परिणाम-आधारित विश्व बैंक संरचित बॉण्ड है जो निजी पूंजी को संरक्षण गतिविधियों के वित्तपोषण के लिये प्रसारित करता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

63. प्रसारण अवसंरचना और नेटवर्क विकास (BIND) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह प्रसार भारती को उसके प्रसारण बुनियादी ढाँचे के विस्तार और उन्नयन से संबंधित व्यय के लिये वित्तीय सहायता प्रदान करने की एक योजना है।
2. इससे देश में भौगोलिक क्षेत्र और जनसंख्या के हिसाब से ऑल इंडिया रेडियो (AIR) प्रसारण का कवरेज़ 100% तक बढ़ जाएगा।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

64. बेहतर समझ और संख्यात्मक ज्ञान के साथ पढ़ाई में प्रवीणता के लिये राष्ट्रीय पहल (निपुण भारत) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह सुनिश्चित करता है कि देश का प्रत्येक बच्चा वर्ष 2026-27 तक ग्रेड-3 के अंत तक आवश्यक रूप से मूलभूत साक्षरता और गणना करने का ज्ञान (FLN) प्राप्त कर ले।
2. मूलभूत साक्षरता और गणना करने का ज्ञान (FLN) पढ़ने, लिखने और गणित में बुनियादी कौशल को संदर्भित करती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

65. निम्नलिखित कथनों पर विचार कीजिये:

1. महिला सम्मान बचत प्रमाणपत्र केवल 40 वर्ष और उससे अधिक उम्र की महिलाओं को दिया जाता है।
2. सुकन्या समृद्धि खाता योजना का उद्देश्य भारत में बालिकाओं के कल्याण को बढ़ावा देना है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

66. ई-कॉमर्स प्लेटफॉर्म के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इन्वेंटरी मॉडल प्लेटफॉर्म ऑपरेटर खरीदारों और विक्रेताओं के बीच विनिमय की सुविधा प्रदान करते हैं एवं रसद, वितरण और प्रतिलाभ को प्रबंधित कर ऑर्डर को पूरा कर सकते हैं।
2. मार्केटप्लेस मॉडल में ऑनलाइन खुदरा विक्रेताओं की अपनी मालसूची होती है और वे सीधे अपने प्लेटफॉर्म के माध्यम से उपभोक्ताओं को बेचते हैं।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

67. ऑपरेशन इंटरफ्लेक्स निम्नलिखित में से किसको सर्वोत्तम रूप से संदर्भित करता है?

(a) यूक्रेन को सैन्य सहायता और समर्थन के लिये संयुक्त राज्य (ब्रिटेन) (UK) की प्रतिबद्धता।
(b) युद्धग्रस्त रोगियों के उपचार के लिये एक शल्य प्रक्रिया।
(c) रूस और अमेरिका के बीच एक अंतरमहाद्वीपीय उड़ान।
(d) विनिर्माण प्रक्रियाओं की निगरानी और अनुकूलन के लिये एक सॉफ्टवेयर एप्लिकेशन।

68. AUKUS के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसका उद्देश्य समूह के सदस्यों के बीच रक्षा क्षमताओं को बढ़ावा देना है।
2. हाल ही में न्यूज़ीलैंड इस समूह का स्थायी सदस्य बना है।

उपर्युक्त कथनों में से कौन-सा/से सही ***नहीं*** है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

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62. Consider the following statements with reference to Wildlife Conservation Bond (WCB):

1. It is released to protect and increase black rhino populations in South Africa.
2. It is an outcome-based World Bank bond that channels private capital to finance conservation activities.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

63. With reference to Broadcasting Infrastructure and Network Development (BIND), consider the following statements:

1. It is a scheme for providing financial support to Prasar Bharti for expenses related to expansion and upgradation of its broadcasting infrastructure.
2. It will increase coverage of All India Radio (AIR) transmission in the country to 100% by geographical area and by population.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

64. With reference to National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat), consider the following statements:

1. It ensures that every child in the country necessarily attains Foundational Literacy and Numeracy (FLN) by the end of Grade 3, by 2026-27.
2. Foundational Literacy and Numeracy (FLN) refers to basic skills in reading, writing, and mathematics.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

65. Consider the following statements:

1. Mahila Samman Savings Certificate is only for women of age 40 and above.
2. Sukanya Samriddhi Account scheme aims to promote the welfare of girl child in India.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

66. Consider the following statements with reference to e-commerce platforms:

1. In the Inventory model platform operators facilitate transactions between buyers and sellers and can fulfil the orders by handling logistics, deliveries and returns.
2. In the marketplace model online retailers' own inventory and directly sell to consumers through their own platform.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

67. Operation Interflex best refers to which of the following?

(a) United Kingdom 's (UK) commitment for military aid and support to Ukraine.
(b) A surgical procedure to treat war-stricken patients.
(c) An intercontinental flight between Russia and United States of America (USA).
(d) A software application to monitor and optimize manufacturing processes.

68. With reference to AUKUS, consider the following statements:

1. It aims to boost defence capabilities among the group members.
2. Recently New Zealand became permanent member of this grouping.

Which of the statements given above is/are ***not*** correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

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69. संयुक्त राष्ट्र पर्यावरण कार्यक्रम के 'SEED' के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. इसकी स्थापना वर्ष 2002 में जोहान्सबर्ग में सतत् विकास पर विश्व शिखर सम्मेलन में की गई थी।
2. यह सतत् विकास और हरित अर्थव्यवस्था के लिये कार्य करने वाले बढ़ते उद्यमों और महत्त्वाकांक्षी उद्यमियों के साथ सीधे कार्य करता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

70. ग्रीन शिपिंग के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. ग्रीन शिपिंग का तात्पर्य पर्यावरणीय प्रभाव को कम करने के लिये समुद्री उद्योग में पर्यावरण-अनुकूल प्रथाओं और प्रौद्योगिकियों के कार्यान्वयन से है।
2. ग्रीन शिपिंग के एक प्रमुख पहलू में जहाज़ों को विद्युत प्रदान करने और ग्रीनहाउस गैस उत्सर्जन को कम करने के लिये तरलीकृत प्राकृतिक गैस (LNG) और हाइड्रोजन जैसे वैकल्पिक ईंधन का उपयोग शामिल है।
3. भारत ने अभी तक ग्रीन शिपिंग का वैश्विक केंद्र बनाने के लिये कोई निश्चित समय सीमा तय नहीं की है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

71. निम्नलिखित फसलों पर विचार कीजिये:

1. सरसों 2. कपास
3. मूंगफली 4. चना
5. मटर

उपर्युक्त में से कौन-सी रबी फसलें हैं?

(a) केवल दो
(b) केवल तीन
(c) केवल चार
(d) सभी पाँच

72. कृषि की कुछ नई पद्धति के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. एरोपोनिक्स एक प्रकार की खेती है जिसमें पौधों को न्यूनतम मिट्टी की उपलब्धता के साथ अनुलंबवत पाइपों पर बोया जाता है।
2. हाइड्रोपोनिक्स एक प्रकार की खेती है जिसमें पौधे को विकसित होने के लिये किसी बाह्य खनिज पोषक तत्त्व की आवश्यकता नहीं होती है।
3. एक्वापोनिक्स एक प्रकार की खेती है जिसमें मछली और कृषि पौधे सहजीवी संबंध बनाते हैं।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई भी नहीं

73. बबूल, कोक्को, खैर, खेजड़ी तथा पलास निम्नलिखित में से किस प्रकार के वन की सामान्य प्रजातियाँ हैं?

(a) उष्णकटिबंधीय सदाबहार वन
(b) शुष्क पर्णपाती वन
(c) आर्द्र पर्णपाती वन
(d) काँटेदार वन

74. निम्नलिखित युग्मों पर विचार कीजिये:

जनजातियाँ एवं नस्लें		*क्षेत्र*
1. बेडौइन	:	उत्तरी अफ्रीका
2. मूर	:	न्यूज़ीलैंड
3. रेड इंडियन	:	अंडमान और निकोबार
4. जुलु	:	दक्षिण अफ्रीका

उपर्युक्त में से कितने युग्म सही सुमेलित हैं?

(a) केवल एक
(b) केवल दो
(c) केवल तीन
(d) सभी चार

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69. Consider the following statements with reference to 'SEED' of United Nations Environment Programme:

1. It was founded at the 2002 World Summit on Sustainable Development in Johannesburg.
2. It works directly with growing enterprises and aspiring entrepreneurs working for sustainable development and green economy.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

70. With reference to Green shipping, consider the following statements:

1. Green shipping refers to the implementation of eco-friendly practices and technologies in the maritime industry to minimize environmental impact.
2. One prominent aspect of green shipping involves the use of alternative fuels, such as liquefied natural gas (LNG) and hydrogen, to power ships and reduce greenhouse gas emissions.
3. India is yet to set a definite deadline to become a global hub for green shipping.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

71. Consider the following crops:

1. Mustard 2. Cotton
3. Groundnut 4. Gram
5. Peas

How many of the above are Rabi crops?

(a) Only two
(b) Only three
(c) Only four
(d) All five

72. Consider the following statements with reference to some new method of farming:

1. Aeroponics is a type of farming in which plants are sown on vertical polls with minimum soil availability.
2. Hydroponics is a type of farming in which no external mineral nutrient is required for a plant to grow.
3. Aquaponics is a type of farming in which fish and agriculture plant form symbiotic relationship.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

73. Acacia, Kokko, Khair, Khejri and Palas are common species of which of the following types of forest?

(a) Tropical Evergreen Forests
(b) Dry Deciduous Forests
(c) Moist Deciduous Forests
(d) Thorn Forests

74. Consider the following pairs:

Tribes and Races		*Regions*
1. Bedouins	:	North Africa
2. Moor	:	New Zealand
3. Red Indians	:	Andaman and Nicobar
4. Zulus	:	South Africa

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) Only three
(d) All four

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75. निम्नलिखित कथनों पर विचार कीजिये:

कथन I:

माल ढुलाई में भारत के अंतर्देशीय जलमार्गों की हिस्सेदारी बढ़कर 10% हो गई है।

कथन-II:

भारत में नदियाँ, नहरें और अप्रवाही जल सहित अंतर्देशीय जलमार्गों का एक व्यापक नेटवर्क है।

उपर्युक्त कथनों के संदर्भ में निम्नलिखित में से कौन-सा सही है?

(a) कथन-I और कथन-II दोनों सही हैं तथा कथन-II कथन-I की सही व्याख्या है।

(b) कथन-I और कथन-II दोनों सही हैं तथा कथन-II कथन-I की सही व्याख्या नहीं है।

(c) कथन-I सही है किंतु कथन-II गलत है।

(d) कथन-I गलत है किंतु कथन-II सही है।

76. मिल्पा, रोका, लदांग और तमराई संदर्भित करता है

(a) स्थानांतरित कृषि पद्धतियों का पारंपरिक रूप।

(b) विश्वभर में निवास करने वाली भारतीय मूल की जनजातियाँ।

(c) हाल ही में तटों पर आये उष्णकटिबंधीय मानसून के नाम।

(d) कदन्न की विभिन्न प्रजातियाँ जो अत्यधिक जल और सूखा प्रतिरोधी हैं।

77. निम्नलिखित पर विचार कीजिये:

1. ब्राज़ील विश्व का सबसे बड़ा कॉफी उत्पादक है।
2. चाय उत्पादन के मामले में भारत इस सूची में पहले स्थान पर आता है।
3. थाईलैंड रबर का सबसे बड़ा उत्पादक देश है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो

(c) सभी तीन *(d)* कोई भी नहीं

78. निम्नलिखित पर विचार कीजिये:

1. पूंजी निवेश
2. दबाव समूहों का प्रभाव
3. भण्डारण एवं भण्डारगृह
4. जलवायु

उपर्युक्त में से कितने कारक उद्योगों की स्थिति को प्रभावित करते हैं?

(a) केवल एक *(b)* केवल दो

(c) केवल तीन *(d)* सभी चार

79. भारत के जनसांख्यिकीय लाभांश के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. भारत की कुल जनसंख्या में कार्यकारी आयु की आबादी का भाग वर्ष 2030 तक अपने उच्चतम स्तर पर पहुँच जाएगा।
2. वर्ष 2030 तक भारत का निर्भरता अनुपात घटकर सबसे कम 10% हो जाएगा।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1

(b) केवल 2

(c) 1 और 2 दोनों

(d) न तो 1 और न ही 2

80. निम्नलिखित में से कौन-सा देश मैंगनीज़ का सबसे बड़ा उत्पादक है?

(a) दक्षिण अफ्रीका

(b) भारत

(c) ब्राज़ील

(d) चीन

81. क्वांटम प्रौद्योगिकी के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह इलेक्ट्रॉनिक उपकरणों के प्रदर्शन को बढ़ाने के लिये शास्त्रीय भौतिकी के सिद्धांतों का उपयोग करता है।
2. यह क्वांटम बिट्स (qubits) पर निर्भर करता है जो एक साथ कई अवस्थाओं में मौजूद हो सकता है।
3. यह मुख्य रूप से पारंपरिक दहन इंजन और ईंधन-आधारित परिवहन की दक्षता में सुधार पर केंद्रित है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक

(b) केवल दो

(c) सभी तीन

(d) कोई भी नहीं

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75. Consider the following statements:
Statement-I:
India's inland waterways share has increased to 10% in freight movement.
Statement-II:
India has an extensive network of inland waterways, including rivers, canals, and backwaters.
Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

(c) Statement-I is correct but Statement-II is incorrect

(d) Statement-I is incorrect but Statement-II is correct

76. Milpa, Roca, Ladang and Tamrai refers to

(a) Traditional form of shifting cultivation practices.

(b) Tribes of Indian origin living worldwide.

(c) Names of tropical monsoon hitting the coasts recently.

(d) Variety of millets which are highly water and drought resistant.

77. Consider the following statements:

1. Brazil is the world's largest coffee producer.
2. India comes in first on this list at tea production.
3. Thailand is the largest producer of Rubber.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

78. Conisder the following:

1. Capital investment
2. Influence of pressure groups
3. Storage and warehousing
4. Climate

How many of the above factors influences the location of Industries?

(a) Only one *(b)* Only two
(c) Only three *(d)* All four

79. Consider the following statements with reference to India's demographic dividend:

1. Share of India's working age population to total population will reach its highest level by 2030.
2. India's dependency ratio will decrease to lowest to 10% by 2030.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

80. Which among the following countries is the largest producer of manganese?

(a) South Africa
(b) India
(c) Brazil
(d) China

81. With reference to Quantum technology, consider the following statements:

1. It harnesses the principles of classical physics to enhance the performance of electronic devices.
2. It relies on quantum bits (qubits) that can exist in multiple states simultaneously.
3. It is primarily focused on improving the efficiency of traditional combustion engines and fuel-based transportation.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

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82. जल और बर्फ के गुणों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. जल जमने पर फैलता है, जिससे ठोस अवस्था में तरल अवस्था की तुलना में इसका घनत्व कम हो जाता है।
2. जल का अधिकतम घनत्व लगभग 4 डिग्री सेल्सियस पर होता है, जो तरल जल पर बर्फ के उत्प्लावन में योगदान देता है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

83. निम्नलिखित पर विचार कीजिये :

1. वसा पायसीकारक और स्थायी कारक
2. प्रतिपर्युषक कारक और विरंजक
3. प्रतिऑक्सीकारक
4. परिरक्षक

उपर्युक्त में से कितने का पोषण मूल्य है?

(a) केवल दो *(b)* केवल तीन
(c) सभी चार *(d)* कोई भी नहीं

84. गुरुत्वाकर्षण के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. जब दो वस्तुओं का द्रव्यमान अधिक होता है और वे समीप होते हैं तो गुरुत्वाकर्षण अधिक मज़बूत हो जाता है।
2. उच्च द्रव्यमान और छोटी त्रिज्या एक खगोलीय पिंड के लिये उच्च पलायन वेग का कारण बनती है।
3. गुरुत्वाकर्षण स्थितिज ऊर्जा गुरुत्वाकर्षण से संबंधित एक प्रकार की ऊर्जा है और हमेशा ऋणात्मक होती है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

85. निम्नलिखित कथनों पर विचार कीजिये:

1. दाब बढ़ने पर द्रव्य का क्वथनांक बढ़ जाता है।
2. अशुद्धियाँ मिश्रित करने पर द्रव्य का क्वथनांक घट जाता है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1 *(b)* केवल 2
(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

86. निम्नलिखित कथनों पर विचार कीजिये:

1. जब पदार्थ को बहुत अधिक तापमान तक गर्म किया जाता है तो वह प्लाज्मा में परिवर्तित हो जाता है।
2. प्लाज्मा की उपस्थिति कॉम्पैक्ट फ्लोरोसेंट लैंप को प्रदीप्त करती है।

उपर्युक्त कथनों में से कौन-सा/से सही है/हैं?

(a) केवल 1
(b) केवल 2
(c) 1 और 2 दोनों
(d) न तो 1 और न ही 2

87. निम्नलिखित पर विचार कीजिये:

1. दुग्ध 2. रुधिर
3. समुद्री जल 4. शराब
5. कॉफी

उपर्युक्त में से कितने अम्लीय प्रकृति के हैं?

(a) केवल दो
(b) केवल तीन
(c) केवल चार
(d) सभी पाँच

88. ओजोन (O_3) के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह रोगाणुनाशक के रूप में कार्य करता है।
2. इसका उपयोग विरंजक अभिकारक के रूप में किया जाता है।
3. इसका उपयोग अन्य रसायन बनाने में किया जाता है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

89. निम्नलिखित पर विचार कीजिये:

1. स्वप्रतिरक्षी विकार
2. कोविड-19
3. कैंसर इम्यूनोथेरेपी

उपर्युक्त में से कितने साइटोकाइन स्टॉर्म और साइटोकाइन रिलीज सिंड्रोम से संबंधित हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

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82. With reference to the properties of water and ice, consider the following statements:

1. Water expands when it freezes, causing it to have a reduced density in the solid state compared to the liquid state.
2. The maximum density of water occurs at approximately 4 degree celsius, contributing to the buoyancy of ice on liquid water.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

83. Consider the following:

1. Fat emulsifiers and stabilising agents
2. Antistaling agents and bleaches
3. Antioxidants
4. Preservatives

How many of the above have nutritive value?

(a) Only two *(b)* Only three
(c) All four *(d)* None

84. With reference to Gravity, consider the following statements:

1. Gravity gets stronger when two objects have more mass and are closer.
2. High mass and small radius lead to a higher escape velocity for a celestial body.
3. Gravitational potential energy is a type of energy related to gravity and is always negative.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

85. Consider the following statements:

1. The boiling point of a liquid increases with an increase in pressure.
2. The boiling point of a liquid decreases with the addition of impurities.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

86. Consider the following statements:

1. When matter is heated to a very high temperature it turns into plasma.
2. The presence of Plasma makes Compact Fluorescent Lamps glow.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

87. Consider the following:

1. Milk
2. Blood
3. Sea water
4. Wine
5. Coffee

How many of the above are acidic in nature?

(a) Only two
(b) Only three
(c) Only four
(d) All five

88. With reference to Ozone (O_3), consider the following statements:

1. It works as a germicide as well as a disinfectant.
2. It is used as a bleaching agent.
3. It is used in making of other chemicals.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

89. Consider the following:

1. Autoimmune disorders
2. Covid –19
3. Cancer immunotherapy

How many of the above are associated with Cytokine storm and cytokine release syndrome?

(a) Only one *(b)* Only two
(c) All three *(d)* None

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90. कभी-कभी जनसमाचारों में रहने वाले पद 'ज़िंक-फिंगर न्यूक्लिअस' और 'टैलेन' संबंधित हैं

(a) अंतरिक्ष अन्वेषण

(b) आनुवंशिक अभियांत्रिकी

(c) नवीकरणीय ऊर्जा स्रोत

(d) जलवायु परिवर्तन शमन

91. मानव में पाचन के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. कार्बोहाइड्रेट का पाचन मुख्य रूप से आमाशय में शुरू होता है।
2. पित्त अग्न्याशय द्वारा निर्मित होता है और वसा के पाचन में सहायता करता है।
3. अधिकांश पोषक तत्त्वों का अवशोषण बड़ी आँत में होता है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो

(c) सभी तीन *(d)* कोई भी नहीं

92. रेबीज़ के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह विषाणु के कारण होता है।
2. यह आमतौर पर दूषित जल और भोजन के माध्यम से फैलता है।
3. एक बार नैदानिक लक्षण प्रकट होने पर, रेबीज़ वस्तुत: 100% घातक होता है।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो

(c) सभी तीन *(d)* कोई भी नहीं

93. जैव-चिकित्सा अपशिष्ट प्रबंधन नियमों के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. ये नियम भारतीय चिकित्सा परिषद अधिनियम, 1956 के अंतर्गत बनाए गए हैं।
2. वे जैव-चिकित्सा अपशिष्ट उत्पन्न करने वाली सुविधाओं को अपशिष्ट के पदचिह्न को निर्धारित करने के लिये बारकोड का उपयोग करने के लिये बाध्य करते हैं।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1 *(b)* केवल 2

(c) 1 और 2 दोनों *(d)* न तो 1 और न ही 2

94. निम्नलिखित युग्मों पर विचार कीजिये:

सुपरकंप्यूटर		*देश*
1. तियान्हे-2	:	जापान
2. फुगाकू	:	संयुक्त राज्य अमेरिका
3. समिट	:	चीन

उपर्युक्त में से कितने युग्म सही सुमेलित हैं?

(a) केवल एक

(b) केवल दो

(c) सभी तीन

(d) कोई भी नहीं

95. वैज्ञानिक विकास के संदर्भ में, ट्यूरिंग परीक्षण का उपयोग किया जाता है

(a) सौर पैनलों की दक्षता का आकलन करने हेतु।

(b) परमाणु रिएक्टरों की सुरक्षा का मूल्यांकन करने हेतु।

(c) कृत्रिम प्रणालियों की बुद्धिमत्ता का मापन करने हेतु।

(d) पारिस्थितिकी तंत्र पर जलवायु परिवर्तन के प्रभाव का अध्ययन करने हेतु।

96. ध्वनि के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. ध्वनि तरल पदार्थों की तुलना में ठोस पदार्थों में तीव्रता से यात्रा करती है।
2. तापमान में वृद्धि के साथ वायु में ध्वनि की गति बढ़ जाती है।
3. प्रकाश के विपरीत, ध्वनि निर्वात में यात्रा नहीं कर सकती।

उपर्युक्त में से कितने कथन सही हैं?

(a) केवल एक *(b)* केवल दो

(c) सभी तीन *(d)* कोई भी नहीं

97. निम्नलिखित कथनों पर विचार कीजिये:

1. सामान्य तापमान पर, सभी सामग्रियों में कुछ मात्रा में विद्युत प्रतिरोध होता है।
2. सामग्री अतिचालक अवस्था में संक्रमण करते समय चुंबकीय क्षेत्र को निष्कर्षित कर देती है।

उपर्युक्त में से कौन-सा/से कथन सही है/हैं?

(a) केवल 1

(b) केवल 2

(c) 1 और 2 दोनों

(d) न तो 1 और न ही 2

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90. The terms 'Zinc-finger nucleases', and 'TALENs' sometimes mentioned in the news are related to

(a) Space Exploration
(b) Genetic Engineering
(c) Renewable Energy Sources
(d) Climate Change Mitigation

91. Consider the following statements with reference to digestion in human beings:

1. Digestion of carbohydrates primarily begins in the stomach.
2. Bile is produced by the pancreas and aids in the digestion of fats.
3. The majority of nutrient absorption occurs in the large intestine.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

92. With reference to Rabies, consider the following statements:

1. It is caused by a virus.
2. It is generally transmitted through contaminated water and food.
3. Once clinical symptoms appear, rabies is virtually 100% fatal.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

93. With reference to the Bio-Medical Wastes Management Rules, consider the following statements:

1. These rules are framed under the Indian Medical Council Act, 1956.
2. They mandate Bio-Medical Waste generating facilities to use barcodes to track the waste.

Which of the statements given above is/are correct?

(a) 1 only *(b)* 2 only
(c) Both 1 and 2 *(d)* Neither 1 nor 2

94. Consider the following pairs:

Supercomputer		*Country*
1. Tianhe-2	:	Japan
2. Fugaku	:	United States of America
3. Summit	:	China

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) All three
(d) None

95. In context of Scientific developments, Turing test is used for

(a) assessing the efficiency of solar panels.
(b) evaluating the safety of nuclear reactors.
(c) measuring the intelligence of artificial systems.
(d) studying the impact of climate change on ecosystems.

96. Consider the following statements regarding sound:

1. Sound travels faster in solids than in liquids.
2. The speed of sound in the air increases with an increase in temperature.
3. Unlike light, sound cannot travel in a vacuum.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

97. Consider the following statements:

1. At normal temperatures, all materials have some amount of electrical resistance.
2. Materials expel magnetic fields as they transition to the superconducting state.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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98. किसी पारिस्थितिकी तंत्र की धारण क्षमता के संदर्भ में, निम्नलिखित कथनों पर विचार कीजिये:

1. यह किसी प्रजाति का अधिकतम जनसंख्या आकार है जिसे पर्यावरण अनिश्चित काल तक जीवित रख सकता है।
2. संसाधन उपलब्धता, पर्यावरणीय परिस्थितियाँ जैसे बाह्य कारकों का इस पर कोई प्रभाव नहीं पड़ता है और यह पूरी तरह से प्रजातियों की प्रजनन रणनीतियों पर निर्भर करता है।
3. उच्च धारण क्षमता वाला पारिस्थितिकी तंत्र कम धारण क्षमता वाले पारिस्थितिकी तंत्र की तुलना में किसी प्रजाति की बड़ी आबादी को धारित कर सकता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक *(b)* केवल दो
(c) सभी तीन *(d)* कोई भी नहीं

99. प्रकाश से संबंधित निम्नलिखित घटनाओं पर विचार कीजिये:

1. प्रकाश का परिक्षेपण अपवर्तन के कारण होता है।
2. सूर्योदय और सूर्यास्त के समय आकाश का लाल रंग प्रकाश के परावर्तन के कारण होता है।
3. इंद्रधनुष निर्माण के दौरान वर्षा की बूंदों में पूर्ण आंतरिक परावर्तन होता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई भी नहीं

100. तरंगों के संदर्भ में, निम्नलिखित पर विचार कीजिये:

1. सर्प अवरक्त तरंगों को संसूचित कर सकते हैं।
2. रिमोट नियंत्रकों में अवरक्त तरंगों का व्यापक रूप से उपयोग किया जाता है।
3. एक्स-रे के अत्यधिक संपर्क में आने से जीवित ऊतकों और जीवों को नुकसान पहुँचता है।

उपर्युक्त कथनों में से कितने सही हैं?

(a) केवल एक
(b) केवल दो
(c) सभी तीन
(d) कोई भी नहीं

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98. Consider the following statements with reference to the carrying capacity of an ecosystem:

1. It is the maximum population size of a species that the environment can sustain indefinitely.
2. It is not influenced by external factors such as resource availability, environmental conditions, and is solely dependent on species' reproductive strategies.
3. An ecosystem with a high carrying capacity can support a larger population of a species than an ecosystem with a low carrying capacity.

How many of the above statements are correct?

(a) Only one *(b)* Only two
(c) All three *(d)* None

99. Consider the following phenomena related to light:

1. Dispersion of light occurs due to refraction.
2. The red colour of the sky during sun rise and sunset occurs due to reflection of light.
3. The total internal reflection occurs inside the droplets of rain during rainbow formation.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

100. Consider the following with reference to waves:

1. Snakes can detect infrared waves.
2. Infrared waves are widely used in remote switches.
3. Over exposure to X-rays damages living tissues and organisms.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

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CIVIL SERVICES (PRELIMINARY) TEST SERIES – 2024

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TEST BOOKLET SERIES

Test Code: P1/P2/P3-2412

TEST BOOKLET
GENERAL STUDIES

TEST – 12

D

Time Allowed : Two Hours **Maximum Marks : 200**

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3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside this line. *DO NOT* write *anything else* on the Test Booklet.
4. This Test Booklet contains 100 items (questions). Each question is printed both in **Hindi** and **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each item.
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6. All items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your admission certificate.
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9. Sheets for rough work are appended in the Test Booklet at the end.
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    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **One-Third** of the marks assigned to that question will be deducted as penalty.
    (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
    (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be no **penalty** for that question.

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TEST BOOKLET SERIES

Test Code: P1/P2/P3-2412

(English Version)

ANSWER & EXPLANATION
GENERAL STUDIES
TEST – 12

D

ANSWERS

Q. No.	Answers	Q. No.	Answers	Q. No.	Answers	Q. No.	Answers
1	(b)	26	(a)	51	(a)	76	(a)
2	(c)	27	(a)	52	(c)	77	(b)
3	(a)	28	(a)	53	(b)	78	(d)
4	(b)	29	(a)	54	(b)	79	(a)
5	(b)	30	(b)	55	(d)	80	(a)
6	(b)	31	(d)	56	(d)	81	(a)
7	(d)	32	(b)	57	(c)	82	(c)
8	(b)	33	(b)	58	(c)	83	(d)
9	(b)	34	(d)	59	(c)	84	(c)
10	(c)	35	(a)	60	(c)	85	(a)
11	(b)	36	(c)	61	(c)	86	(c)
12	(c)	37	(d)	62	(c)	87	(b)
13	(c)	38	(d)	63	(a)	88	(c)
14	(b)	39	(b)	64	(c)	89	(c)
15	(d)	40	(d)	65	(b)	90	(b)
16	(a)	41	(c)	66	(d)	91	(d)
17	(a)	42	(c)	67	(a)	92	(b)
18	(c)	43	(d)	68	(b)	93	(b)
19	(d)	44	(a)	69	(c)	94	(d)
20	(c)	45	(b)	70	(b)	95	(c)
21	(b)	46	(c)	71	(b)	96	(c)
22	(b)	47	(a)	72	(a)	97	(c)
23	(c)	48	(c)	73	(d)	98	(b)
24	(d)	49	(a)	74	(b)	99	(b)
25	(a)	50	(a)	75	(d)	100	(c)

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1. (b)

Explanation:

- Recently, the **International Rhino Foundation (IRF)** published the report, **State of the Rhino, 2023** which documents current population estimates and trends for the **five** surviving rhino species in Africa and Asia.
- Greater one-horned rhinos are **not found exclusively** in India. They are also found in **Nepal, Pakistan and Bhutan. Hence, statement (1) is NOT correct.**
- Greater one-horned rhinos are indeed classified as **Vulnerable in IUCN list** due to the threats they face from habitat loss and poaching. **Hence, statement (2) is correct.**
- There are **three species of rhino in Asia—Greater one-horned** (Rhinoceros unicornis), **Javan** and **Sumatran**. **Only the Great One-Horned Rhino is found in India.** Also known as Indian rhino, it is the largest of the rhino species. **Hence, statement (3) is correct.**
- It is identified by a single black horn and a grey-brown hide with skin folds.

2. (c)

Explanation:

- **The Peninsular Plateau** is made up of **crystalline rocks like granite, gneiss, and schist.** The plateau is also made up of igneous and metamorphic rocks. **Hence, statement (1) is correct.**
- The **northern boundary of the Peninsular Block** may be taken as an **irregular line running from Kachchh** along the western flank of the Aravalli Range near Delhi and then roughly parallel to the Yamuna and the Ganga as far as the **Rajamahal Hills and the Ganga delta.**
- The **Peninsular Block is known for its relatively stable topography** with fewer tectonic activities compared to the Himalayan region, which is highly seismically active. **Hence, statement (2) is correct.**
- Apart from these, the **Karbi Anglong and the Meghalaya Plateau in the northeast and Rajasthan in the west** are also extensions of this block. The northeastern parts are separated by the **Malda fault in West Bengal** from the **Chotanagpur plateau**. **Hence, statement (3) is correct.**
- In Rajasthan, the desert and other desert–like features overlay this block. The Peninsula is formed essentially by a **great complex of very ancient gneisses and granites,** which constitutes a major part of it.

3. (a)

Explanation:

- **Dun formations** are indeed characterized by **low-lying alluvial plains;** they are typically found along the **foothills of the Himalayas,** including both the lesser and greater Himalayan ranges. **Hence, statement (1) is correct.**
- The Duns are also known as Dims and duns are used as a local word for valley or open valley. **Duar formations** are not situated in the **higher regions of the Himalayas,** nor are they mostly found in Northwestern parts of the Himalayas.
- Duar formations **are also low-lying plains located along the foothills** of the Himalayas, particularly in the **northeastern and northwestern parts, rather than the higher regions. Hence, statement (2) is NOT correct.**

4. (b)

Explanation:

- **The Indian Standard Time (IST)** is based on a longitude of **82.5° E,** which passes through **Mirzapur, near Allahabad in Uttar Pradesh.**
- It is **5 hours 30 minutes ahead of Greenwich Mean Time (GMT),** now called the Universal Coordinated Time (UTC). **Hence, statement (1) is NOT correct.**
- The **CSIR-NIPL (New Delhi) is the keeper of the time in India,** it records time using five caesium atomic clocks.
- **Time zones in India were first set up in 1884,** during the British Raj. Before independence, **India followed three major time zones** - Bombay, Calcutta and Madras Time. **Hence, statement (2) is correct.**
- **IST** is an anachronism like many systems that were inherited from the British.
- **It was in 1906** that India had a single IST running through the **center of the country.**

5. (b)

Explanation:

- In India, **tribal population makes up for 8.6%** of the total population.
- **PVTGs** are **more vulnerable** among the tribal groups. Due to this factor, more developed and assertive tribal groups take a major chunk of the tribal development funds because of which PVTGs need more funds directed for their development.

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- In 1973, the **Dhebar Commission** created Primitive Tribal Groups (PTGs) as a separate category, who are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as PVTGs.
- In this context, in **1975,** the Government of India initiated to identify the most vulnerable tribal groups as a separate category called PVTGs and declared 52 such groups, while in 1993 an additional 23 groups were added to the category, making it a **total of 75 PVTGs out of 705 Scheduled Tribes. Hence, statement (2) is correct.**
- PVTGs have some basic characteristics - they are mostly homogenous, with a small population, relatively physically isolated, absence of written language, relatively simple technology and a slower rate of change etc.
- Among the 75 listed PVTG's the **highest number are found in Odisha. Hence, statement (1) is NOT correct.**
- Further, no PVTGs are found in the states of Punjab and Haryana. **Hence, statement (3) is correct.**

6. (b)

Explanation:

- **Vanadium** is a chemical element with the **symbol V.** It is a scarce element, hard, silvery grey, ductile and malleable **transition metal** with good structural strength. **Hence, statement (2) is correct.**
- **Transition metals** are all the elements in groups 3–12 of the periodic table. These are superior conductors of heat as well as electricity.
- Vanadium is used primarily as an **alloying element in the Iron & Steel Industry** and to some extent as a stabiliser in titanium and aluminium alloys used in the **aerospace Industry. Hence, statement (1) is correct.**
- Modern applications of vanadium include its use as vanadium secondary batteries for power plants and **rechargeable Vanadium Redox Battery (VRB)** for commercial applications.
- Vanadium alloys are used in nuclear reactors because of **vanadium's low neutron-absorbing properties.**
- Concentrations of vanadium have been found in the palaeo-proterozoic (era) carbonaceous phyllite rocks in the Depo and Tamang areas of Papum Pare district in Arunachal Pradesh.
- However, India is not self-sufficient in Vanadium. India imports vanadium. In 2021, India imported $115M in vanadium and other ores. **Hence, statement (3) is NOT correct.**

7. (d)

Explanation:

- The **Suez Canal is an artificial sea-level waterway** running north to south across the Isthmus of Suez in Egypt, to connect the **Mediterranean Sea and the Red Sea. Hence, statement (1) and statement (2) are NOT correct.**
- The canal separates the African continent from Asia. It is located entirely in the mainland Egypt and its Sinai Peninsula. **Hence, statement (3) is NOT correct.**
- It provides the **shortest maritime route between Europe and the lands lying around the Indian and western Pacific oceans.**
- It is one of the world's most heavily used shipping lanes, carrying over 12% of world trade by volume. It provides a crucial link for oil, natural gas and cargo being shipped from East to West.

8. (b)

Explanation:

- **Greenbushes, Australia:** Greenbushes in Australia is a significant source of lithium, a key mineral used in batteries and various other applications. **Hence, pair (1) is correctly matched.**
- **Ruhr, Germany:** The Ruhr region in Germany is historically known for its **coal and steel** production, but it is not associated with uranium mining. **Hence, pair (2) is NOT correctly matched.**

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- **Chuquicamata, Chile:** Chuquicamata in Chile is one of the world's largest copper mines, and Chile is a major global producer of copper. **Hence, pair (3) is correctly matched.**

9. (b)

Explanation:

- **Upwelling** is not a process in which currents **bring warm water to the surface of the ocean.** Instead, it is associated with the rising of cold, nutrient-rich water from the depths of the ocean to the surface. **Hence, statement (1) is NOT correct.**
- Upwelling can **indeed lead to increased biological productivity in marine ecosystems.** The cold, nutrient-rich water that rises during upwelling provides essential nutrients to the surface waters, supporting the growth of phytoplankton and other marine organisms. This increased productivity can attract various marine species. **Hence, statement (2) is correct.**
- Upwelling is a **result of winds and the rotation of the Earth.** Specifically, it is driven by wind patterns that push surface waters away from the coast, causing an upwelling of deep, cold water to replace it. The Coriolis effect, a result of the Earth's rotation, also influences the direction and speed of the upwelling currents. **Hence, statement (3) is correct.**
- **Coastal upwelling,** which brings nutrient-rich water to the surface, **actually promotes the growth of seaweed and plankton** due to the increased availability of nutrients. It does not destroy their growth. **Hence, statement (4) is NOT correct.**

10. (c)

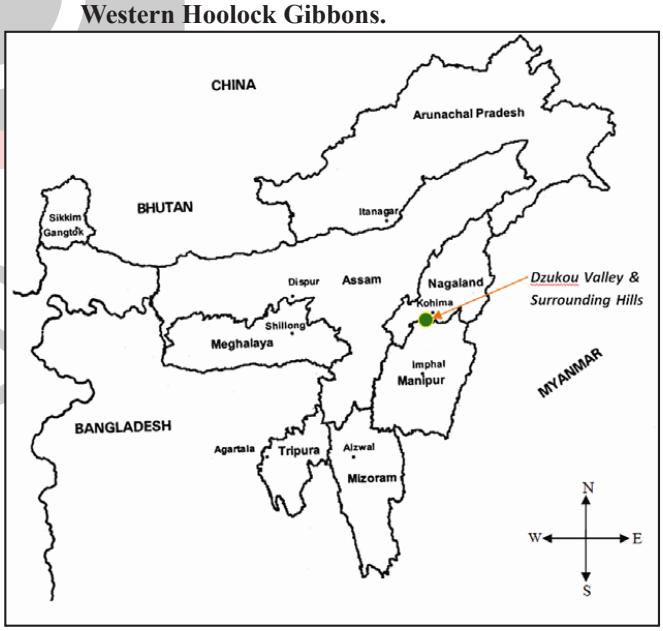
Explanation:

- **Mumbai Port** is indeed the largest natural port and harbor in India. It is situated on the west coast of India and is a significant port for both cargo handling and passenger traffic. **Hence, statement (1) is correct.**
- **Kolkata Port** is India's only major riverine port. It is located on the Hooghly River in West Bengal and handles a significant amount of cargo, primarily through inland waterways. **Hence, statement (2) is correct.**
- **Kandla Port,** officially known as Deendayal Port, is one of India's major seaports and is the largest port by volume of cargo handled. It is located in the Kutch district of Gujarat and plays a crucial role in India's trade, especially for handling bulk cargo. **Hence, statement (3) is correct.**
- **India has 13 major ports** - Deendayal (Kandla), Mumbai, Mormugao, New Mangalore, Cochin, Chennai, Ennore (Kamarajar), Tuticorin (V O Chidambaranar), Visakhapatnam, Paradip and Kolkata (including Haldia) and Jawaharlal Nehru Port.

11. (b)

Explanation:

- The **Dzukou Valley,** popularly known as the **'valley of flower',** is located at the border of **Nagaland and Manipur. Hence, option (b) is correct.**
- Situated at an **altitude of 2,438 metres** behind the Japfu mountain range, it is one of the most popular trekking spots in the **Northeast.**
- **Dzukou valley and Japfu peak** are located adjacent to the Pulie Badze Wildlife Sanctuary (Nagaland).
- There are **no human habitations within the forests**, but they are home to rare and 'vulnerable' (as per the IUCN Red List) birds - **Blyth's Tragopan (Nagaland's state bird),** the Rufous-necked Hornbill and the Dark-rumped Swift. Also found in the forests are **endangered Western Hoolock Gibbons.**



12. (c)

Explanation:

- **Jabalpur** is located on the banks of the **Narmada** River, known for its marble rocks and scenic beauty. It is one of the cities associated with the Narmada River. **Hence, pair (1) is correctly matched.**

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- **Hyderabad** is **not situated on the Kaveri River.** The Kaveri River flows through the southern states of Karnataka and Tamil Nadu but does not pass through **Hyderabad,** located on the banks of the **Musi River. Hence, pair (2) is NOT correctly matched.**
- **Vijayawada** is a major city in the state of **Andhra Pradesh,** and it is situated on the banks of the **Krishna** River. **Hence, pair (3) is correctly matched.**
- **Mathura,** a historic city in Uttar Pradesh, is located on the banks of the **Yamuna** River. **Hence, pair (4) is correctly matched.**

13. (c)

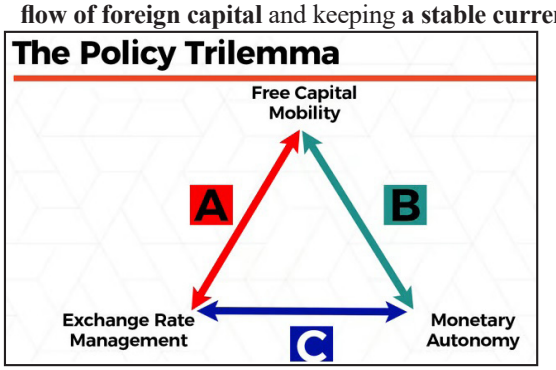
Explanation:

- The incremental capital output ratio (ICOR) is a frequently used tool that explains the relationship between the level of investment made in the economy and the subsequent increase in the gross domestic product (GDP).
- ICOR indicates **the additional unit of capital or investment needed to produce an additional unit of output in a year. Hence, option (c) is correct.**
- ICOR is a metric that assesses the marginal amount of investment capital necessary for a country or other entity to generate the next unit of production.
- A lower ICOR is preferred as it indicates a country's production is more efficient.
  - ***ICOR*= Annual Investment /Annual Increase in GDP.**

14. (b)

Explanation:

- One of the toughest challenges central bankers face is how to navigate the "Impossible Trinity" -- **maintaining monetary policy independence** while allowing **a steady flow of foreign capital** and keeping **a stable currency.**



Hence, option (b) is correct.

15. (d)

Explanation:

- **National Payments Corporation of India (NPCI),** an umbrella organization for operating retail payments and settlement systems in India, is an initiative of **Reserve Bank of India (RBI)** and **Indian Banks' Association (IBA)** under the provisions of the Payment and Settlement Systems Act, 2007, for creating a robust Payment & Settlement Infrastructure in India.
- Considering the utility nature of the objects of NPCI, it has been incorporated as a "**Not for Profit" Company under the provisions of Section 25 of Companies Act 1956** (now Section 8 of Companies Act 2013), with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems.
- The Company is focused on bringing innovations **in the retail payment systems** through the use of technology to achieve greater efficiency in operations and widening the reach of payment systems.
- Under the PSS Act, 2007 as per the authorization of RBU, NPCI can operate the following payment systems:
  - National Financial Switch (NFS)
  - Immediate Payment System (IMPS)
  - Ru Pay Cards
  - National Automatic Clearing House (NACH)
  - Aadhaar Enabled Payments System (AEPS)
  - Operation of Cheque Truncation System
  - Aadhaar Payment Bridge (APB) System
  - **Bharat Bill Payment System-** Electricity, Gas, Water, Telecom, DTH, Loan Repayments, Insurance, **FASTag Recharge,** Cable etc. across India.
- Indian Post Payment Banks Launched on September 1, 2018, with **100% equity owned by the Government of India. It is not an initiative of NPCI.**

Hence, option (d) is correct.

16. (a)

Explanation:

- The Indian Patent Act of 1970 is a pivotal piece of legislation governing intellectual property rights in India.
- It provides for the grant of **both product and process patents,** ensuring inventors can protect their **novel and**

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non-obvious innovations. E.g. Invention of new medicine for Cancer and a method for genetically modifying a plant to be resistant to pests.

- The Act sets criteria for patentability, establishes **a 20-year patent term,** and includes provisions for compulsory licensing, safeguards for pharmaceuticals, and compliance with international agreements like TRIPS.
- The Indian Patents Office oversees the patent application process, while patent holders **enjoy exclusive rights to their inventions.**
- Under Section 3 of the Indian Patent Act, certain subject matter is deemed non-patentable. This includes inventions that are **frivolous, contrary to public order or morality, mere discoveries of laws of nature, living beings and biological processes, and methods of agricultural or horticultural practices. Additionally, methods of treatment of human or animal bodies are not patentable, except for the substances used in these methods.**
- **For Example:**
  - Any machine used for performing theft or burglary
  - A method of generating mushrooms
  - **A method of algae cultivation**
  - **An invention related to cloning of humans**
  - Weeds removal methods
  - Medicinal methods: Administering medicines process orally
  - Surgical methods: Cataract operation
  - **Method for playing chess**
  - Teaching method.
- Following type of work comes under the domain of Copyright Act, 1957, hence not patentable
  - **Literary works**
  - Computer programs
  - Music/ Sound recordings
  - Paintings, Drawings, Architecture, Photographic works etc.

Hence, option (a) is correct.

17. (a)

Explanation:

- The Central Drugs Standard Control Organization (CDSCO) under **Ministry of Health & Family Welfare,** Government of India is the **National Regulatory Authority (NRA)** of India.
- The **Drugs & Cosmetics Act, 1940** and rules 1945 have entrusted various responsibilities to central & state regulators for **regulation of drugs & cosmetics.**
- CDSCO is constantly thriving upon to bring out transparency, accountability and uniformity in its services in order **to ensure safety, efficacy and quality of the medical product manufactured, imported and distributed in the country.**
- Under the Drugs and Cosmetics Act, CDSCO is responsible for approval of **New Drugs, Conduct of Clinical Trials, laying down the standards for Drugs, control over the quality of imported Drugs in the country** and coordination of the activities of State Drug Control Organizations by providing expert advice with a view of bring about the uniformity in the enforcement of the Drugs and Cosmetics Act. **Hence, statement (2) is correct.**
- Further CDSCO along with state regulators, is jointly responsible for **grant of licenses** of certain specialized categories of critical Drugs such as blood and blood products, I. V. Fluids, Vaccine and Sera.
- National Pharmaceutical Pricing Authority (NPPA) was constituted vide Government of India Resolution dated 29th August, 1997 as an attached office of the Department of Pharmaceuticals (DoP), **Ministry of Chemicals & Fertilizers** as **an independent Regulator for pricing of drugs and to ensure availability and accessibility of medicines at affordable prices. Hence, statement (1) and statement (3) are NOT correct.**

18. (c)

Explanation:

- A **popular feature of short-term capitals flows** (movement of international investable money) is that they are often speculative and are highly unstable flows. Their quick inflows and outflows are creating management problem for many emerging market central banks like the RBI.
- Countries in the past have used a wide range of measures to regulate the flow of speculative or short-term capital.
- One such instrument is the **use of tax-like measures on capital inflows.** The simplest example of such a tax is **Tobin tax.**
- Tobin tax is a **tax on international flow of short-term capital.** The tax is known after economist James Tobin who proposed it in1972 in the form of a currency transaction tax.

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- Basically, Tobin tax **aims to discourage volatile short term capital flows or hot money which are very speculative.** Tobin has advocated the imposition of tax on cross border flow of short-term capital as these are the sources of volatility and risks in the host economies. According to Tobin, the role of tax on short term capital flows is to ''throw some sand in the wheels' of speculative activity. **Hence, option (c) is correct.**

19. (d)

Explanation:

- The **Foreign Investment Facilitation Portal (FIFP)** is the new online single point interface of the Government of India for investors to facilitate **Foreign Direct Investment.** This portal is being administered by the Department for Promotion of Industry and Internal Trade (DPIIT), **Ministry of Commerce & Industry. Hence, statement (1) is NOT correct.**
- This portal will continue to facilitate the **single window clearance of applications** which are through **approval route.** Upon receipt of the FDI application, the concerned Administrative Ministry/Department shall process the application as per the **Standard Operation Procedure (SOP). Hence, statement (2) is NOT correct.**

20. (c)

Explanation:

- With billions of IoT devices currently deployed all over the world, there clearly isn't a dearth of data.
- However, the **enormous amount of data generated by the IoT devices** wasn't being manipulated to understand human behaviour, which paved the way for an upgrade in the form of the Internet of Behaviours.
- **The Internet of Behaviour or IoB is a concept that brings together the best of data analysis, behavioural analysis, and technology along with human psychology.**
- Through this amalgamation, the system is able to predict human behaviour, draw insights from available data, and even influence human behaviour based on the activities and interests of persons collected from their interactions.
- Organizations that are looking to sell products or services can influence our behaviour based on targeted content that has been curated specifically for an individual based on their preferences and interactions.
- **The data is collected using the same methods that IoT uses to collect data.**
- Although most IoT devices seem to work on a surface level where they collect data from sensors and other connected devices.
- **IoB collects information from transactions, geo-tagging activities to relate particular locations to certain interests, browser history and cookies, social media interactions to understand what every user relates to, and other online activities that reflect personal behaviour.**

Hence, option (c) is correct.

21. (b)

Explanation:

- **Space sustainability** ensures that **all humanity can continue to use outer space for peaceful purposes** and for its socioeconomic benefit now and in the long term. **Hence, statement (1) is correct.**
- As the challenge of orbital debris or **"space junk"** is set to grow, current and future missions face an increasing risk of possible collisions.
- **The Space Sustainability Rating (SSR) will provide a new, innovative way of addressing the orbital challenge** by encouraging responsible behaviour in space through increasing the transparency of organizations' debris mitigation efforts.
- The SSR will provide a score representing a mission's sustainability as it relates to debris mitigation and alignment with international guidelines.
- **The SSR concept was developed by the World Economic Forum's Global Future Council on Space Technologies. Hence, statement (2) is NOT correct.**
- The Committee on the Peaceful Uses of Outer Space (COPUOS) was set up by the UN General Assembly in 1959 to govern the exploration and use of space for the benefit of all humanity: for peace, security and development.
- **In June 2019, the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space were adopted. Hence, statement (3) is correct.**
- The Guidelines provide guidance on the policy and regulatory framework for space activities; safety of space operations; international cooperation, capacity-building and awareness; and scientific and technical research and development.

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22. (b)

Explanation:

- **VPN stands for "Virtual Private Network" and describes the opportunity to establish a protected network connection when using public networks. Hence, statement (1) is correct.**
- **VPNs encrypts the internet traffic and disguise your online identity.** This makes it more difficult for third parties to track your activities online and steal data. The encryption takes place in real time.
- **A remote access VPN allows devices in different remote locations to access a private network, like that of a company or a government agency. Hence, statement (2) is correct.**
- While VPNs are commonly used by businesses and organizations for secure communication, **they are also relevant and widely used by individual users for personal privacy,** bypassing geo-restrictions, and securing internet connections, especially when using public Wi-Fi networks. **Hence, statement (3) is NOT correct.**

23. (c)

Explanation:

- **Near Field Communication (NFC) is a wireless technology** that is becoming increasingly prevalent in the fleet industry.
- NFC enables **short-range communication between two compatible devices**—typically an NFC tag and a smartphone or tablet.
- **Radio Frequency Identification (RFID) is a wireless, contactless data transfer technology** that uses tags or cards to store data, that **do not need to be powered and allows for only one way communication. Hence, option (c) is correct.**
- **RFID tags are either active or passive.** Active RFID tags contain their own power source giving them the ability to broadcast with a read range of up to 100 meters. Passive RFID systems use tags with no internal power source and instead are powered by the electromagnetic energy transmitted from an RFID reader.
- There are **two different types of NFC:** active and passive.
  - **Active NFC,** which is currently used on many Android devices, as well as the new Apple devices, can send and receive data. One major use of NFC is storing and transferring contact or credit card information.
  - **Passive NFC,** on the other hand, can only send data.
- Their long read range makes active RFID tags ideal for many industries where asset location and other improvements in logistics are important.

24. (d)

Explanation:

- USA's space agency NASA has launched **James Webb Space Telescope (JWST) which will use a natural phenomenon called "gravitational lensing"** to carry out astronomical observations.
- The phenomenon of **gravitational lensing** occurs when a **huge amount of matter, such as a massive galaxy, cluster of galaxies** or **a black hole,** creates a gravitational field that distorts and magnifies the light from objects behind it. **Hence, option (d) is correct.**
- Gravitational lensing is based on **Einstein's theory of general relativity (Mass bend light).**
- Normal lenses such as the ones in a magnifying glass work by bending light rays that pass through them in a process known as refraction, in order to focus the light somewhere else.
- Similarly, the gravitational field of a massive object causes light rays passing close to that object to be bent and refocused somewhere else.
- The more massive the object, the stronger its gravitational field and hence the greater the bending of light rays - just like using denser materials to make optical lenses results in a greater amount of refraction.
- In effect, **gravitational lenses act like natural cosmic telescopes.**

25. (a)

Explanation:

- **NASA's Double Asteroid Redirection Test (DART),** the world's first full-scale mission to test technology for defending Earth against **potential asteroid or comet hazards,** launched on a SpaceX Falcon 9 rocket from the Space Launch Complex in California. **Hence, option (a) is correct.**
- Just one part of **NASA's larger planetary defense strategy, DART** – built and managed by the Johns Hopkins **Applied Physics Laboratory (APL) in Laurel, Maryland – will impact a known asteroid that is not a threat to Earth.** Its goal is to slightly change the asteroid's motion in a way that can be accurately measured using ground-based telescopes.

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26. (a)

Explanation:

- WHO today published a report highlighting the first-ever list of fungal "priority pathogens" – a catalogue of the 19 fungi that represent the greatest threat to public health.
- The **WHO fungal priority pathogens list (FPPL)** is the first global effort to systematically prioritize fungal pathogens, considering the unmet research and development (R&D) needs and the perceived public health importance. The WHO FPPL aims to focus and drive further research and policy interventions to strengthen the global response to fungal infections and antifungal resistance.
- The **four main classes of antifungal drugs** are **the polyenes, azoles, allylamines and echinocandins. Hence, option (a) is correct.**
- As the fungi that cause common infections (**such as candida oral and vaginal thrush**) become increasingly **resistant to treatment,** risks for the **development of more invasive forms of infections** in the general population are also growing.

27. (a)

Explanation:

- The World Health Organization's **Global Antimicrobial Resistance and Use Surveillance System (GLASS) was launched to foster AMR surveillance** and inform strategies to contain AMR.
- The **aims of this report** are to:
  - describe the elements and status of development of GLASS;
  - summarize the results of the data call on 2018 AMR data from participating countries, territories and areas;
  - summarize participation of countries, territories and areas and their progress in AMR-related surveillance; and
  - summarize AMR surveillance activities globally. **Hence, option (a) is correct.**

28. (a)

Explanation:

- **DNA and RNA vaccines use genetic material to deliver information to human cells** and elicit an immune response. **DNA vaccines are safe, easy, affordable to produce, and, unlike RNA vaccines, are stable at room temperature.** These attributes make them more promising for rapidly immunizing populations, especially in resource-limited settings. **Hence, statement (1) is correct.**
- DNA vaccines use small, circular DNA molecules, called plasmids, to introduce a gene from a bacterium or virus to trigger an immune response.
- **ZyCoV-D**, the recently **developed COVID-19 DNA vaccine authorized in India,** consists of a plasmid that carries a gene that codes for the SARS-CoV-2 spike protein. **Hence, statement (2) is NOT correct.**
- After entering a human cell, the plasmid must make its way through the cytoplasm, cross the nucleus membrane, and enter the cell nucleus.
- Enzymes in the nucleus convert the viral or bacterial gene that the plasmid carries into messenger RNA (mRNA). The mRNA must then travel to the cytoplasm, where enzymes convert into a bacterial or viral protein.
- The immune system identifies the bacterial or viral protein as a foreign body and elicits an immune response.

29. (a)

Explanation:

- **FSSAI (Food Safety and Standards Authority of India)** is a premier government body that underpins standards for the selling, packaging, or storage of food items in India.
- To ensure utmost food safety, the FSSAI has mandated every food business operator to secure an applicable food license. FSSAI functions under the aegis of **the Ministry of Health and Family Welfare and the Government of India.** FSSAI outlines various guidelines and standards in accordance with **the Food Safety and Standards Act, 2006. Hence, statement (1) is NOT correct.**
- FSSAI, the food regulator in India, defines fortification as a deliberate approach of increasing the amount of imperative micronutrients in food articles to enhance the nutritional quality and facilitate health benefits to the masses.
- Under **Food Safety and Standards Act, 2006,** the FSSAI is vested with the power to make regulations. The food fortification regulations introduced on August

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2, 2018, known as Food Safety and Standards (Fortification of Foods) Regulations 2018, thereby bringing all relevant norms concerned to it under one ambit. **Hence, statement (2) is correct.**

- The **Agricultural and Processed Food Products Export Development Authority (APEDA)** was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act. **APEDA is mandated with the responsibility of export promotion and development** not the FSSAI. **Hence, statement (3) is NOT correct.**

30. (b)

Explanation:

- **Reptiles are generally considered cold-blooded,** meaning their body temperature is regulated by their environment. **Hence, statement (1) is correct.**
- **Some mammals are oviparous,** which means they lay eggs as a method of reproduction. Monotremes, a group of **egg-laying mammals,** are a prime example. Platypuses and echidnas (spiny anteaters) are two well-known examples of oviparous mammals. Most mammals, however, are viviparous, giving birth to live young. **Hence, statement (2) is correct.**
- **Amphibians are cold-blooded vertebrates** that are at least partially aquatic and breathe through their skin. An amphibian's life cycle is broken down into 2 stages, larval and adult. The larval stage is 100% aquatic, and the adult stage may be only semi-aquatic.
- **Hibernation is a state of reduced metabolic activity** and dormancy that allows animals to survive **cold periods** when food and other resources are scarce.
- During hibernation, amphibians typically find a sheltered location, such as burrows, logs, or under leaf litter, where they can stay protected from the cold and conserve energy. This is a survival strategy to endure the winter and is common among **many amphibian species.**
- **Aestivation is a state of dormancy into which an animal enters during hot and dry periods. Therefore, not all amphibians** undergo aestivation. Most of them are cold blooded and undergo hibernation. **Hence, statement (3) is NOT correct.**

31. (d)

Explanation:

- Algae are a class of photosynthetic organisms found in both marine and freshwaters habitats. As these organisms have a short doubling time, they are considered among fastest growing creatures
- They have different **pathways to fix atmospheric carbon dioxide and nitrogen oxides** and to efficiently utilize the nutrients to convert it into biomass.
- In few years, a focus has been shifted towards these organisms due to **their food and fuel production** capability.
- In fuel industry **algae biofuels** have been emerged as a clean, nature friendly, cost effective solution to other fuels. Algae fuels are categorized into **bio-ethanol, biogas, bio-hydrogen, biodiesel and bio-oil.**
- Algae as a food have been explored for different applications as in production of single cell **proteins, pigments, bioactive substances, pharmaceuticals and cosmetics.**
- With the help of Blue green algae (BGA), various physical, chemical properties of soil are improved along with increasing yield and saving of fertilizer nitrogen. Blue green algae like *Nostoc*, *Anabaena* and *Tolypothrix*are **capable of fixing atmospheric nitrogen and are used as inoculants for growing paddy crops in both upland and low land conditions. Hence, option (d) is correct.**

32. (b)

Explanation:

- Curry Leaves, that quintessential aromatic ingredient, found in the Indian households have innumerable health and therapeutic benefits. This tree being indigenous t**o India, Srilanka and many Southeast Asian countries** is known by several vernacular names such as Kadi Patta etc. **Hence, statement (1) is NOT correct.**
- Curry tree, being a sub-tropical tree growing to a height of 4-6 m and having a medium sized trunk goes by the botanical name *Murraya koenigii.*
- The curry leaves have potent **anti-bacterial, anti-fungal, anti-inflammatory and antioxidant properties.** So regular consumption of curry leaves shields our body against various infections and germs. **Hence, statement (2) is correct.**

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- The plant produces small white flowers which can pollinate themselves and it produces small, black, shiny semi-globose fruits with a single large seed. Though the fruits are fleshy and edible, neither the flower nor the fruits are used for culinary purposes. **Hence, statement (3) is correct.**
- Packed with a multitude of nutrients like **carbohydrates, fiber, calcium, phosphorus, iron, magnesium, zinc, multivitamins and flavonoids, curry leaves are an arcade of health benefits.** It is extensively used in the treatment of anemia, diabetes, indigestion, obesity, kidney problems, hair and skin problems.

33. (b)

Explanation:

- **Millets** are high in nutrition and dietary fiber. **Hence, statement (2) is correct.**
- They serve as a good source of protein, micronutrients and phytochemicals.
- Millets contain **7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fibre.** The essential amino acid profile of millet protein is better than various cereals such as maize.
- Millets contain fewer cross-linked prolamins, which may be an additional factor contributing to higher digestibility of the millet proteins.
- Similar to cereal proteins, the **millet proteins are poor sources of lysine,** but they complement well with lysine - rich vegetables (leguminous) and animal proteins which form nutritionally balanced composites of high biological value. **Hence, statement (1) is NOT correct.**
- Millets are more nutritious compared to fine cereals. Small millets are good sources of phosphorus and iron.
- Millets contribute to antioxidant activity with phytates, polyphenols, tannins, anthocyanins, phytosterols and pinacosanols present in it having important role in aging and metabolic diseases.
- All millets possess high antioxidant activities. **Hence, statement (3) is correct.**

34. (d)

Explanation:

- To diversify our export basket, destinations and boost high value- and value-added agricultural exports including focus on perishables. **Hence, statement (3) is correct.**
- To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports. **Hence, statement (2) is correct.**
- To provide an institutional mechanism for pursuing market access, tackling barriers and deal with sanitary and phytosanitary issues. **Hence, statement (1) is correct.**
- To strive to double India's share in world agri exports by integrating with global value chain at the earliest.
- Enable farmers to get benefit of export opportunities in overseas market.

35. (a)

Explanation:

MACS 1407

- It is a high-yielding and pest-resistant variety of soybean developed by Indian Scientists. **Hence, statement (1) is correct.**
- It is suitable for cultivation in the states of **Assam, West Bengal, Jharkhand, Chhattisgarh and North-Eastern states.**
- The new variety has been developed by scientists from MACS – Agharkar Research Institute (ARI), Pune.
- The variety was developed using the conventional cross breeding technique. **Hence, statement (2) is NOT correct.**
- Its thick stem, higher pod insertion (7 cm) from ground, and resistance to pod shattering make it suitable even for mechanical harvesting.
- It is suitable for rain-fed conditions of north-east India.
- Using the conventional cross breeding technique, scientists developed **MACS 1407** which gives **39 quintals per hectare** making it **a high yielding variety.**
- It **requires an average of 43 days (about 1 and a half months) for 50% flowering** and takes 104 days (about 3 and a half months) to mature from the date of sowing.
- It has white colored flowers, yellow seeds and black hilum. Its seeds have **19.81% oil content, 41% protein content and show good germinability.**
- Its thick stem, higher pod insertion (7 cm) from ground, and resistance to pod shattering make it suitable even for **mechanical harvesting.**
- It is **suitable for rain-fed conditions of north- east India.**
- It is suitable for cultivation in the states of Assam, West Bengal, Jharkhand, Chhattisgarh and North-Eastern states.

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- Variety is also **resistant to major insect-pests** like girdle beetle, leaf miner, leaf roller, stem fly, aphids, white fly and defoliators.

36. (c)

Explanation:

- India is the **largest producer (25% of global production), consumer (27% of world consumption) and importer (14%) of pulses in the world.**
- Pulses account for around **20% of the area under foodgrains** and contribute around **7-10% of the total foodgrains production in the country. Hence, statement (1) is correct.**
- Though pulses are grown in **both Kharif and Rabi seasons, Rabi pulses contribute more than 60% of the total production. Hence, statement (2) is correct.**
- **Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka** are the top five pulses-producing states.
- In India, the important pulse crops grown in winter (rabi) are chickpea, lentil, lathyrus, field pea and kidney bean. However, green gram, black gram and cowpea are grown in both spring and rainy season.

37. (d)

Explanation:

- The coconut palm is found to grow under varying climatic and soil conditions. It is essentially a tropical plant, growing mostly between **20° N and 20° S latitudes.**
- The ideal temperature for coconut growth and yield is **27 ± 5° C and humidity > 60 per cent.** The coconut palm grows well up to an elevation of **600 m above Mean Sea Level.**
- However, near the equator, productive coconut plantations can be established up to an elevation of about 1000 m above Mean Sea Level.
- The palms tolerate a wide range in intensity and distribution of rainfall.
- However, a well distributed rainfall of **about 200 cm per year is the best for proper growth** and higher yield.
- In areas of inadequate rainfall with uneven distribution, irrigation is required.

Hence, option (d) is correct.

38. (d)

Explanation:

- A population is a subgroup of individuals within the same species that are living and breeding within a geographic area.
- The number of individuals living within that specific location determines the population density, or the number of individuals divided by the size of the area.
- Population density can be used to describe the location, growth, and migration of many organisms.
- In the case of humans, population density is often discussed in relation to urbanization, immigration, and population demographics.
- Population density is the concentration of individuals within a species in a specific geographic locale. **Hence, statement (3) is correct.**
- Population density data can be used to quantify demographic information and to assess relationships with ecosystems, human health, and infrastructure.
- Physiological density is the ratio of total population and net cultivated area. **Hence, statement (1) is correct.**
- Agriculture density is the ratio of total agricultural population and net cultivable area. **Hence, statement (2) is correct.**

39. (b)

Explanation:

- World's largest masonry dam protected with 26 gates; **Nagarjuna Sagar Dam** located in Nalgonda District is built across **River Krishna on border of Andhra Pradesh and Telangana.** The dam has a storage capacity of nearly 11,472 million cubic meters with an irrigation capacity for 9.81 lac acres of land. **Hence, pair (1) is correctly matched.**
- **Hirakud dam** is a multipurpose scheme conceived by **Er. M. Visveswaraya in 1937,** after recurrence of devastating floods in **Mahanadi River.** Its first hydro power was commissioned in 1956.It is the longest dam of India. The **Debrigarh wildlife sanctuary** is located near Hirakud dam. It is bounded on the east and north by the huge Hirakud reservoir. **Hence, pair (2) is correctly matched.**
- The main purpose of the koyna dam is **to provide hydroelectricity with some irrigation facilities in neighbouring areas.** It is built on Koyna river. **Hence, pair (3) is NOT correctly matched.**

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- The Koyna dam **supplies water to Paschim Maharashtra** as well as to the hydroelectric power to neighbouring areas.

40. (d)

Explanation:

- Manganese is an important mineral for making iron and steel; and it acts as a basic raw material for manufacturing alloys.
- India has **second largest** manganese ore reserves in the world after Zimbabwe. **Hence, statement (1) is correct.**
- The total Manganese ores are **distributed** in Odisha (44%), Karnataka (22%), Madhya Pradesh (13%), Maharashtra (8%), Andhra Pradesh (4%) and Jharkhand & goa (3% each),
- India is **fifth** largest producer of manganese ore after Brazil, Gabon, South Africa and Australia
- Maharashtra, Madhya Pradesh, Odisha, Andhra Pradesh and Karnataka are the major Manganese **producing** states.
- Over 4/5th of total **production** is consumed within the country, and less than 1/5th is exported.
- **Mica** is mainly used in the electrical and electronic industries. **Hence, statement (2) is correct.**
- It can be split into very thin sheets which are tough and flexible.
- **Mica** in India is produced in **Jharkhand, Andhra Pradesh, Rajasthan, Tamil Nadu, West Bengal** and **Madhya Pradesh.**
- In **Jharkhand,** high quality mica is obtained in a belt extending over about **150 km** in length and about **22 km,** in width in lower **Hazaribagh plateau.**
- **Sulphur, phosphates** and **nitrates** are examples of **non-metallic minerals.**
- They are employed in the creation of **fertilizer and cement.**
- **Cement** is a mixture of **non-metallic minerals. Hence, statement (3) is correct.**
- Crude petroleum occurs in **sedimentary rocks** of the tertiary period.**Hence, statement (4) is correct.**

41. (c)

Explanation:

- At present, in India, there is no clear nationally accepted definition of 'forest'.
- States are responsible for determining their definition of forests. **Hence, statement (2) is correct.**
- The prerogative of the states to define forests stems from a 1996 Supreme Court order called the **T.N. Goda Varman Thirumulkpad vs the Union of India** judgment.
  - In the judgement, the Supreme Court interpreted that the word "forest" must be understood according to its "dictionary meaning".
  - This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise.
- Forests are included in the **Concurrent List** in the (Seventh Schedule) of the Constitution of India.
- Through the **42nd amendment Act,** 1976 Forests and Protection of Wild Animals and Birds were transferred from State to Concurrent List.
- Tree cover refers to the **total area of land that is covered by trees, regardless of whether or not the trees** are part of a forest ecosystem. **Hence, statement (1) is correct.**
- **Forest cover,** on the other hand, **refers specifically to the area of land that is covered by a forest ecosystem,** which is defined as an area with a **tree canopy density of more than 10%** and an **area of more than 1 hectares.**
- So, all forest cover is tree cover, but not all tree cover is forest cover.

42. (c)

Explanation:

- Pipelines are the most convenient and efficient mode of transporting liquids and gases over long distances.
- Even Solids can also be transported by pipeline after converting them into slurry.
- Oil India Limited under administrative setup of ministry of petroleum and natural gas.
- Pipelines consume very little energy in comparison to another mode of transportation
- Transit losses are minimal in transportation through pipelines.
- The running cost of the materials through pipelines is very low. It is less than 10 times than surface transportation.
- Naharkatia-Nunmati-Barauni Pipeline is **first pipeline constructed in India. Hence, statement (1) is correct.**
- Mumbai High-Mumbai-Ankleshwar-Koyali Pipeline.
- Hajira-Bijapur-Jagdishpur (HBJ) Gas Pipeline is **world's largest underground pipeline.**
- Jamnagar-Loni LPG Pipeline is **longest LPG pipeline in the world. Hence, statement (2) is correct.**

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43. (d)

Explanation:

- **Natural graphite** is mostly consumed for **refractories, batteries, steelmaking, expanded graphite, lubricants and brassware etc.**
- A refractory material is one that retains its strength at high temperatures.
- Natural and synthetic graphite are used to **construct the anode** of all major battery technologies
- The lithium-ion battery utilizes roughly twice the amount of graphite than lithium carbonate.
- Natural graphite in this end use mostly goes into carbon raising in **molten steel** (to make steel stronger).
- Natural amorphous graphite is used in brake linings for heavier vehicles and became important with the need to substitute for asbestos.
- **Graphite lubricants** are specialty items for use at very high or very low temperatures.
- **Modern pencil** lead is most commonly a mix of powdered graphite and clay.

Hence, option (d) is correct.

44. (a)

Explanation:

- India is currently the world's **second-largest telecommunications market** with a subscriber base of 1.20 billion and has registered strong growth in the past decade and a half. **Hence, statement (2) is NOT correct.**
- Contribution of mobile phone industry as a part of gross domestic product (GDP) of the country in 2014 has been to the tune of US$ 400 billion.
- According to a report prepared by the Groupe Speciale Mobile Association (GSMA), as of January 2019, India has witnessed a 165% growth in app downloads in the past two years.
- Based on the data available from GSMA, this sector will create close to 4 million additional jobs by 2020.
- Tele-density of Indian telecom industry (wireless plus wire line) has grown from a low of 3.60% in March 2001 to 84% in March 2016.
- **Telecom is the second highest revenue earner for the government, after income tax:** The sector is expected to contribute as much as 90% of the government's non-tax revenue. Digital India programme is also almost completely dependent on the telecom sector. **Hence, statement (1) is correct.**

45. (b)

Explanation:

- Mission Kakatiya is a flagship program under **Telangana** government aimed at restoring minor irrigation sources of water like ponds and tanks. **Hence, statement (1) is NOT correct.**
- The objective is to enhance the development of Minor Irrigation infrastructure, strengthening community based irrigation management in a decentralized manner and to adopt a comprehensive programme for restoration of tanks and sources of water to effectively utilize 265 TM of water allocated for minor irrigation sector under Godavari and Krishna river Basins.
- Gram Sabha were conducted and the proposed plans were discussed with the villagers. Farmers were motivated to co-operate and were suggested to deposit the silt for field preparation. **Hence, statement (2) is correct.**
- Several district level coordination committees were formed. Emphasis was given for improvement in delivery time of services.
- Steps like tank de-siltation, restoration of the feeder channels, re-sectioning of irrigation channels, repair of bund, weir and sluice, raising of FTL (Full Tank Level) wherever required were carried out.

46. (c)

Explanation:

- Primary industries are those that involve the extraction and production of raw materials directly from natural resources.
- These industries are fundamental in providing the necessary inputs for other sectors to operate. Here are some examples of primary industries:
  - **Agriculture:** The cultivation of crops, farming of livestock, and other agricultural activities.
  - **Fishing:** The process of catching fish and other aquatic species for commercial purposes.
  - **Forestry:** The management and harvesting of forests for timber and other forest products.
  - **Mining:** The extraction of minerals, ores, and other natural resources from the Earth's crust.
- These primary industries form the backbone of many economies, providing essential raw materials for various manufacturing and processing activities.

Hence, option (c) is correct.

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47. (a)

Explanation:

TRIFED is involved in following initiatives:

- **Van Dhan Vikas Yojana:**
  - Van Dhan Scheme, **a component of 'Minimum Support Price for Minor Forest Produce',** was launched in 2018.
  - An initiative **targeting livelihood generation for tribal gatherers** and transforming them into entrepreneurs.
  - The idea is **to set-up tribal community-owned Van Dhan Vikas Kendra Clusters (VDVKCs)** in predominantly forested tribal districts.
  - VDVKs are **for providing skill upgradation and capacity building training to tribals** and setting up of primary processing and value addition facilities.
- **Tech For Tribals:**
  - It **aims to transform 5 crore Tribal Entrepreneurs** by capacity building and imparting entrepreneurship skills to tribal forest produce gatherers enrolled under the **Pradhan Mantri Van Dhan Yojana (PMVDY).**
  - The program will ensure higher success rate of the Tribal Entrepreneurs by enabling and **empowering them to run their business with marketable products** with quality certifications.
- **TRIFOOD Scheme:**
  - It was launched in August 2020 and **promotes value addition to Minor Forest Produce.**
  - TRIFOOD parks will produce processed foods from minor forest produce and also from the food gathered by the tribal people in that region.
- **Village and Digital Connect Initiative:**
  - To ensure that existing schemes and initiatives reach the tribals, TRIFED's regional officials across the country have been visiting identified villages with a significant tribal population. Mid day meal scheme is not an initiative of TRIFED. **Hence, option (a) is correct.**

48. (c)

Explanation:

- The Self-Reliant India Mission aims towards **cutting down import dependence** by focussing on substitution while improving safety compliance and quality goods to gain global market share. **Hence, statement (1) is correct.**
  - Self-Reliance **neither signifies any exclusionary or isolationist strategies** but involves creation of a helping hand to the whole world.
- The Mission focuses on the **importance of promoting "local" products.**
- The Mission is based on **five pillars** namely,
  - Economy
  - Infrastructure
  - System
  - Vibrant Demography
  - Demand
- The Mission is also expected to complement **'Make in India Initiative'** which intends to encourage manufacturing in India. **Hence, statement (2) is correct.**

49. (a)

Explanation:

- India Stack is a set of **APIs (Application programming interface)** that allows governments, businesses, startups and developers to utilize a unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
- It aims to unlock the economic primitives of identity, data, and payments at population scale.
- The vision of India Stack is not limited to one country; **it can be applied to any nation,** be it a developed one or an emerging one.
- This project was conceptualized and first implemented in India, where its rapid adoption by billions of individuals and businesses has helped promote financial and social inclusion and positioned the country for the Internet Age. **Hence, option (a) is correct.**

50. (a)

Explanation:

- **42nd Constitutional Amendment Act, 1976:** Inserted new article 228A. - After article 228 of the Constitution, Special provisions as to disposal of questions relating to constitutional validity of State laws. - (1) No High Court shall have jurisdiction to declare any Central law to be constitutionally invalid. However, the 43rd Amendment Act of 1977 restored the original position. Consequently, High Courts have the jurisdiction to declare any central law to be constitutionally invalid. **Hence, statement (1) is NOT correct.**

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- In the **Keshavananda Bharati case** (1973), Supreme Court laid down a new doctrine of the 'basic structure' of the Constitution. It ruled that the constituent power of Parliament under Article 368 can amend the constitution under Article 368, but Such amendments does not enable it to alter the 'basic structure' of the Constitution.
- Anything that ultra vires the constitution is cut down by the highest judiciary including the Constitutional amendment. An amendment to the Constitution of India can be called into question by the Supreme Court of India. **Hence, statement (2) is NOT correct.**
- In the **Minerva Mills case,** the Supreme Court held that the Indian Constitution is founded on the bedrock of the balance between the fundamental rights and the Directive Principles. They together constitute the core of commitment to social revolution. They are like two wheels of a chariot, one no less than the other.
- Parliament can amend the fundamental rights for implementing the Directive Principles, so long as the amendment does not destroy the basic structure of the Constitution. **Hence, statement (3) is correct.**

51. (a)

Explanation:

- **Article 40** states that the Indian States shall take steps for **organizing village panchayats** with the endowment to have the power and authority to function as a unit of self-government. **Hence, statement (1) is correct.**
- **Reservation in favor of SC/ST and women** (both members and chairpersons) in panchayats at all three levels is a compulsory provision, while providing reservation of seats (both members and chairpersons) for backward classes in panchayat at any level is a voluntary provision. **Hence, statement (2) is correct.**
- Like the **establishment of the State Election Commission** for conducting elections to the panchayats. The constitution of State Finance Commission after every five years to review the financial position of the panchayats is also a **compulsory provision. Hence, statement (3) is NOT correct.**
- The state legislature may make provisions with respect to the maintenance of accounts by the panchayats and the auditing of such accounts. **Hence, statement (4) is NOT correct.**

52. (c)

Explanation:

- **One Aadhaar:** Aadhaar is a **unique number,** and no resident can have a duplicate number since it is linked to their individual biometrics; thereby identifying fake and ghost identities which result in leakages today.
- **Portability:** Aadhaar is a universal number, and agencies and services can contact the central Unique Identification database from anywhere in the country to authenticate a beneficiary's identity by availing authentication services.
- **Electronic benefit transfers:** The UID-enabled-Bank-Account network will offer a secure and low-cost platform to directly remit benefits to residents without the heavy costs associated today with benefit distribution; the leakages in the current system will also be stemmed as a result.
- **Proof of address and identity:** It serves as proof of identity and proof of address for resident of India. **Aadhar is not a proof of citizenship.**
- **Self-service puts residents in control:** Using Aadhaar as an authentication mechanism, residents should be able to access up-to-date information about their entitlements, demand services and redress their grievances directly from their mobile phone, kiosks or other means. **Hence, option (c) is correct.**

53. (b)

Explanation:

- After the **42nd constitutional amendment (1976),** ministerial advice has been made binding on the President, but no such provision has been made with respect to the governor. **Hence, statement (1) is NOT correct.**
- The governor has constitutional discretion in cases like, reservation of a bill for the consideration of the President, recommendation for the imposition of the Presidents Rule in the state etc. While the dismissal of the council of ministers when it cannot prove the confidence of the state legislative assembly is the **situational discretion** of the governor. **Hence, statement (2) is NOT correct.**
- The **governor cannot pardon a death sentence.** Even if a state law prescribes for the death sentence, the power to grant pardon lies with the President and not the governor. But the governor can suspend, remit or commute a death sentence. **Hence, statement (3) is correct.**

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- Regarding money bills, the governor may give his assent to the bill, he may withhold his assent to the bill, or he may reserve the bill for the consideration of the president. **Hence, statement (4) is correct.**

54. (b)

Explanation:

- The **International Fund for Agricultural Development (IFAD)** is a **specialized agency of the United Nations** established in 1977, with its headquarters in Rome, Italy. **Hence, statement (2) is NOT correct.**
- IFAD's primary mission is to eradicate rural poverty by providing financial and technical assistance to developing countries for agriculture and rural development projects.
- It focuses on empowering smallholder farmers and rural communities to improve their food security, increase income, and promote sustainable development. **Hence, statement (1) is correct.**
- IFAD supports projects that enhance agricultural productivity, build rural infrastructure, and strengthen the capacity of local institutions.
- It **operates on the principle of inclusive and participatory development,** involving marginalized and vulnerable groups in decision-making processes.
- Recently, it has listed its sustainable bonds on London Stock Exchange. Since Private investors are a powerful force to help IFAD fund its developmental partnership, it has ventured into financial market as well. **Hence, statement (3) is correct.**

55. (d)

Explanation:

- **'Dakar Declaration'** has been adopted by **21 African countries committing** to strengthening reporting on **road crash fatalities,** enhancing data capture, analysis, sharing, and coordination to shape better road safety policies.
- It was adopted at the **first African sub-regional conference on implementing the Global Plan for Road Safety** in **Dakar, Senegal.**
- It is a guiding document to support the implementation of Decade of Action for Road Safety 2021-2030. **Hence, option (d) is correct.**

56. (d)

Explanation:

- **All five of the entities listed** – the General Assembly, Security Council, Trusteeship Council, Economic and Social Council, and International Court of Justice – are principal organs of the United Nations. These organs are **established by the UN Charter,** each with specific functions and responsibilities.
- **General Assembly:** It is the main deliberative organ of the UN, where all member states have representation and can discuss and make decisions on a wide range of international issues.
- **Security Council:** It is responsible for maintaining international peace and security, the Security Council has primary responsibility for the authorization of the use of force and the imposition of sanctions.
- **Trusteeship Council:** While its functions have been largely completed with the attainment of independence by trust territories, the Trusteeship Council is still in existence and meets as needed.
- **Economic and Social Council (ECOSOC):** It promotes international economic and social cooperation and development, addressing a broad range of issues, including human rights, education, and environmental sustainability.
- **International Court of Justice (ICJ):** It is the principal judicial organ of the UN, it settles legal disputes between states and gives **advisory opinions** on legal questions referred to it by the General Assembly, Security Council, or other UN organs and specialized agencies. **Hence, option (d) is correct.**

57. (c)

Explanation:

- **Iraq,** an almost landlocked country in the Middle East. **Iraq has a short coastline at the Persian Gulf.** The region lies within the *Fertile Crescent*; it is crossed by the river system of Euphrates and Tigris. Iraq was home to the ancient civilizations of Mesopotamia, the "Land Between the Rivers".
- Iraq borders **Turkey, Iran, Syria, Jordan, Kuwait and Saudi Arabia. Hence, option (c) is correct.**

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58. (c)

Explanation:

- The India-Nepal **Treaty of Peace and Friendship** signed in **1950** has indeed been the foundation of their bilateral ties, fostering political, economic, and strategic cooperation. **Hence, statement (1) is correct.**
- The **Kalapani-Limpiyadhura-Lipulekh** region has been a longstanding point of contention between the two nations, sparking diplomatic tensions.
- The disagreement revolves around the demarcation of their borders in this area, with both countries staking claims and engaging in negotiations to address the dispute. **Hence, statement (2) is correct.**
- The porous nature of the India-Nepal border has raised security concerns. The permeable boundary has facilitated various illicit activities, including arms smuggling, terrorist operations, and the circulation of counterfeit Indian currency.
- These security challenges have prompted both nations to collaborate on border management and intelligence-sharing initiatives to curb these transnational threats. **Hence, statement (3) is correct.**

59. (c)

Explanation:

- **UNESCO's role as a specialized agency of the United Nations,** emphasises on global peace and security through the **promotion of cooperation in the realms of education, science, and culture.**
- UNESCO's mission involves fostering collaboration among nations to build intellectual understanding, cultural appreciation, and scientific advancements, all of which are integral to the broader goals of international peace and security.
- **United Nations membership does not automatically imply membership in UNESCO.** While there is a significant overlap, as many UN member states are also part of UNESCO, joining each organization involves a separate decision-making process.
- **Countries may choose to become members of UNESCO based on their specific interests** and priorities related to education, science, and culture.
- Therefore, the mere fact of UN membership does not guarantee membership in UNESCO, and these two entities operate as distinct international organizations with their own membership criteria and functions.
- Three UN member states (Israel, Liechtenstein, United States) are not UNESCO members. **Hence, Statement-I is correct but Statement-II is incorrect.**

60. (c)

Explanation:

- **Short-lived halogens** as gases containing elements such as **chlorine, bromine, or iodine** with atmospheric **lifetimes of less than six months.**
- These **reactive gases play a crucial role in atmospheric chemistry,** participating in various processes that influence air quality and climate. **Hence, statement (1) is correct.**
- Marine organisms release halogenated compounds into the atmosphere as part of their metabolic processes.
- Additionally, abiotic processes, such as the interaction of seawater with certain minerals and the release of volatile compounds from the ocean surface, contribute to the presence of these halogens in the atmosphere. **Hence, statement (2) is correct.**
- Short-lived halogens participate in complex chemical reactions, impacting air quality, stratospheric ozone depletion, and climate. For instance, bromine compounds are significant contributors to ozone destruction in polar regions.

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61. (c)

Explanation:

- **Supreme Court (SC)** held that charge sheet by probing agency is **not a "public document".** It stated that putting it in public domain will violate the rights of victim, accused and investigating agencies.
- **Charge sheet** refers to a formal police record showing the names of each person brought into custody, the nature of the accusations, and the identity of the accusers. **Hence, statement (2) is correct.**
- Under **Youth Bar Association Case (2016)** the SC issued directions to the police to upto
- **First Information Report (FIR)** is a written document prepared by the police when they receive information about the commission of a cognizable offence. **Hence, statement (1) is correct.**
- Under Youth Bar Association Case (2016) the SC issued directions to the police to upload the FIRs in website within 24 hours except in sensitive cases like rape.
- **The term, 'chargesheet' is defined under Section 173 of the CrPC but First Information Report has not been defined in either the IPC or the CrPC. Instead, it finds a place under the police regulations/ rules under Section 154 of CrPC, which deals with 'Information in Cognizable Cases'.**

62. (c)

Explanation:

- It is known as **Rhino Bond,** WCB is a **five-year $150m** sustainable development bond, to protect and increase black rhino populations in **two protected areas in South Africa. Hence, statement (1) is correct.**
- **Wildlife Conservation Bond (WCB)** is an **outcome-based World Bank** structured bond that channels private capital to finance conservation activities. **Hence, statement (2) is correct.**
- The **Wildlife Conservation Bond** is a **first-of-its-kind, outcome-based, financial instrument that channels investments to achieve conservation** outcomes measured in this case by an increase in black rhino populations. The program **could be expanded to protect other wildlife species.**
- There **are five rhino species globally** (white and black rhinos in Africa, and the greater one-horned, **Javan, and Sumatran), with most of the animals in South Africa and almost all of them are white rhinos** as the number of black rhinos is decreasing day by day.

63. (a)

Explanation:

- The Cabinet Committee on Economic Affairs approved the proposal of the **Ministry of Information and Broadcasting** regarding the **Central sector scheme "Broadcasting Infrastructure and Network Development" (BIND) Scheme with an outlay of Rs.2,539.61 crore up to 2025-26.**
- It is a scheme for providing **financial support to Prasar Bharti** or expenses related to expansion and upgradation of its broadcasting infrastructure, content development and civil work related to the organization. **Hence, statement (1) is correct.**
- **Prasar Bharati,** as the public broadcaster of the country, is the most important vehicle of information, education, entertainment and engagement for the people especially in the remote areas of the country through Doordarshan (DD) and All India Radio (AIR).
- Prasar Bharati played a stellar role in communicating public health messages and awareness to the public during the **covid pandemic.**
- It will widen Prasar Bharati's reach, including in the LWE (Left wing extremism) border and strategic areas and provide high quality content to the viewers.
- It will increase coverage of AIR FM (frequency modulation) transmitters in the country **to 66% by geographical area and 80% by population, up from 59% and 68% respectively. Hence, statement (2) is NOT correct.**
- The Scheme also envisages free distribution of over 8 lakh DD Free Dish STBs (Set Top Box) to people living in remote, tribal, LWE and border areas.
- In addition to enhancing the scope of public broadcasting, the Project has the **potential to generate indirect employment by way of manufacturing and services related to supply** and installation of broadcast equipment.
- Content generation and content innovation for AIR & DD has the potential of indirect employment of persons with varied experience of different media fields in the content production sector including TV/Radio production, transmission and associated media related services.

64. (c)

Explanation:

- The **Ministry of Education** has launched a national mission for FLN 'NIPUN Bharat (National Initiative

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for Proficiency in Reading with Understanding and Numeracy)' for ensuring that every child in the country necessarily attains FLN by the end of Grade 3, by 2026-27. **Hence, statement (1) is correct.**

- FLN refers to basic skills in reading, writing, and mathematics. **Hence, statement (2) is correct.**
  - It is the ability to read and understand a basic text and perform simple mathematical calculations by the end of grade 3.
  - It is the ability to read and understand a basic text and perform simple mathematical calculations by the end of grade 3.
  - This becomes the foundation for all future learning upon which other skills are built.
- National Education Policy (NEP) 2020 accords the highest importance to the achievement of FLN.This becomes the foundation for all future learning upon which other skills are built.
- **A five-tier implementation mechanism** will be set up at the National- State- District- Block- School level in all States and UTs, under the **aegis of the centrally sponsored scheme of Samagra Shiksha.**

65. (b)

Explanation:

- **Sukanya Samriddhi Account scheme:**
  - Aims to **promote the welfare of girl children in India. Hence, statement (2) is correct.**
  - Parents or legal guardians can open deposits for **up to two daughters aged below 10,** and **in the case of twin girls or three girl children,** the scheme allows three accounts to be opened.
  - **Minimum initial deposit - Rs 250; Maximum annual ceiling - Rs 150,000.**
  - Deposits can be made for a maximum of 15 years; account matures on completion of **21 years from the date of opening or on the marriage of the account holder,** whichever is earlier. The rates for small-saving instruments are announced quarterly.
- **Mahila Samman Savings Certificate:**
  - A one-time new small savings scheme for **women or girls. Hence, statement (1) is NOT correct.**
  - Available for a **two-year period up to March 2025. Deposit facility up to Rs 2 lakh** (fixed interest rate of 7.5%)
  - Partial withdrawal option

66. (d)

Explanation:

E-commerce platforms have two types of business models:

- **Marketplace model:** Platform operators facilitate transactions between buyers and sellers and can fulfil the orders by handling logistics, deliveries and returns. **For example, Amazon and Flipkart. Hence, statement (2) is NOT correct.**
- **Inventory model:** Allows online retailers to own inventory and directly sell to consumers through their own platform. **For example, Big basket. Hence, statement (1) is NOT correct.**
  - The process of e-commerce enables sellers to come closer to customers that lead to **increased productivity and perfect competition.** The customer can also choose between different sellers and buy the most relevant products as per requirements, preferences, and budget. Moreover, customers now have access to virtual stores 24/7.
  - e-Commerce also leads to significant **transaction cost reduction for consumers.**
  - e-commerce has emerged as one of the fast-growing trade channels available for the **cross-border trade of goods and services.**
  - It provides a **wider reach and reception across the global market,** with minimum investments.

67. (a)

Explanation:

- Operation Interflex is a part of **United Kingdom's (UK) commitment** of £2.3 billion for **military aid** and support to Ukraine.
- Under it, UK and other countries including Canada, New Zealand, Australia, Norway, Denmark, Finland, Sweden, Lithuania, and Netherlands are training Ukraine's military.
- Operation Interflex aims to teach weapon handling, range activity, marksmanship, fieldcraft basics, field tactics, battle casualty drills, counter explosives, the laws of armed conflict, first aid, and cyber security awareness.
- "Flex" in Operation Interflex refers to flexible manufacturing processes. It involves the ability of a manufacturing system to quickly adapt to changes in product demand, design, and production requirements, thereby enhancing overall operational flexibility.

Hence, option (a) is correct.

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68. (b)

Explanation:

AUKUS (US, UK and Australia) unveiled details of plan to create a new fleet of nuclear-powered submarines.

- Announced in 2021, it is a new three-way strategic defence alliance between Australia, the UK and US. **New Zealand is** not a permanent member**. Hence, statement (2) is NOT correct.**
- It aims to boost defense capabilities, accelerate technological integration, and expand the industrial capacity of all three nation. **Hence, statement (1) is correct.**
- AUKUS partnership is composed of two pillars:
- For facilitating sharing of critical technology, a **legally binding tripartite agreement** known as the Exchange of Naval Nuclear Propulsion Information Agreement (ENNPIA) was signed in 2021.

69. (c)

Explanation:

- SEED was founded at the **2002 World Summit on Sustainable Development in Johannesburg** by UN Environment, UNDP and IUCN as a global partnership for action on sustainable development and the green economy. **Hence, statement (1) is correct.**
- SEED is based on the understanding that the promotion of social and environmental entrepreneurship is pivotal for environmentally friendly and socially inclusive development and poverty reduction.
- SEED offers two kinds of programmes – Direct Enterprise Support Programmes and Ecosystem Building Programmes. SEED works directly with growing enterprises and aspiring entrepreneurs in their Enterprise Support programmes to strategize, optimize, and award achievements in eco-inclusive entrepreneurship. **Hence, statement (2) is correct.**
- All SEED's participating enterprises receive a comprehensive SEED Support Package of tailored business and capacity-building support, networking, and profiling at the national and international levels.
- In the category of Direct Enterprise Support Programmes, SEED offers Incubation Programmes and Acceleration Programmes.Incubation Programmes include SEED Starter and SEED Replicator.
- The SEED Starter programme guides participants from the early stages of ideation to the generation of a viable business plan used to launch an eco-inclusive enterprise.
- The SEED Replicator targets entrepreneurs without a business idea as well as early-stage entrepreneurs who are trying to identify partnership opportunities and grow their impact.

70. (b)

Explanation:

- **Ministry of Ports, Shipping and Waterways** has launched the **Green Tug Transition Programme (GTTP**) and inaugurated India's first **Centre of Excellence in Green Port & Shipping (NCoEGPS).**
- Centre sets 2030 as target for India to become global hub for green shipping. **Hence, statement (3) is NOT correct.**
- The Programme will start with **'Green Hybrid Tugs',** which will be powered by Green Hybrid Propulsion systems, and subsequently adopting non-fossil fuel solutions like (Methanol, Ammonia, Hydrogen).
- An important aspect of green shipping involves the use of alternative fuels, such as liquefied natural gas (LNG) and hydrogen, to power ships and reduce greenhouse gas emissions. **Hence, statement (2) is correct.**
- Green shipping refers to the adoption of environmentally sustainable practices and technologies in the maritime industry to mitigate its ecological impact.
- This approach aims to reduce carbon emissions, fuel consumption, and other pollutants associated with shipping operations. **Hence, statement (1) is correct.**

71. (b)

Explanation:

- Kharif, Rabi, and Zaid are three cropping seasons in India, each aligned with different periods of the year and suitable for specific types of crops.
- **Kharif Crops:** These are sown in the rainy season, typically from June to October and harvested from September to December. Some examples of Kharif crops in India include:
  - Rice
  - Maize (corn)
  - **Cotton**
  - Jowar
  - Bajra
  - Millets
  - Soyabeans
  - **Groundnut** is primarily cultivated as a Kharif crop in India. It is sown with the onset of the monsoon season, typically from June to July, and harvested between September and October.

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- **Rabi Crops:** These crops are sown in winter, starting around October to December, and harvested from March to June. Examples of Rabi crops include:
  - Wheat
  - Barley
  - **Mustard**
  - Rapeseed
  - **Peas**
  - **Gram**
- **Zaid Crops:** Zaid crops are grown in the short duration between the Kharif and Rabi seasons, primarily in the summer months from March to June and sometimes extending till September. Examples of Zaid crops include:
  - Watermelon
  - Muskmelon
  - Cucumber
- These three cropping seasons cater to different climatic conditions and ensure a continuous supply of various crops throughout the year, contributing significantly to India's agricultural diversity and food security. **Hence, option (b) is correct.**

72. (a)

Explanation:

- **Aeroponics:** Aeroponics is a method of growing plants **without soil.** In this system, plants are grown in an environment where their roots are suspended in the air, and a nutrient-rich mist is periodically sprayed directly onto the roots. It's a high-tech method that allows for precise control of **nutrients, water, and oxygen levels.**
- Aeroponics can be used to grow various plants, including vegetables, herbs, and some fruit crops, and it's known for potentially faster growth rates and efficient use of resources. **Hence, statement (1) is NOT correct.**
- **Hydroponics:** Hydroponics is a method of growing plants in **a nutrient-rich water solution without using soil.** Instead of soil, the plant's roots are submerged or periodically flooded with **the nutrient solution.**
- The solution contains all the essential nutrients required for plant growth. Hydroponic systems come in various forms, such as nutrient film technique (NFT), deep water culture (DWC), and drip systems. This method allows for precise control over nutrients, pH levels, and water usage. It's often used in controlled environments like greenhouses or indoor farming setups. **Hence, statement (2) is NOT correct.**
- **Aquaponics:** Aquaponics combines aquaculture (the cultivation of aquatic animals like fish) with hydroponics. It's a system where fish are raised in a tank, and the nutrient-rich water from the fish tank is circulated to grow beds where plants are cultivated hydroponically. The plants take up the nutrients from the fish waste, acting as a natural filter to clean the water, which is then recirculated back to the fish tank.
- It's a **symbiotic system** where fish waste provides nutrients for the plants, and the plants help clean the water for the fish. Aquaponics is known for its efficiency in utilizing resources, as it creates a closed-loop ecosystem where both fish and plants benefit from each other. **Hence, statement (3) is correct.**

73. (d)

Explanation:

Thorn Forests

- **Rainfall:** The forests occur in the areas that receive **annual rainfall less than 50cm.**
- **Regions:** This type is found in areas with black soil: North, West, Central, and South India.
  - Includes semi-arid areas of south west Punjab, Haryana, Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh.
- **Trees:** The trees do not grow beyond 10 metres and consist of a variety of grasses and shrubs. Spurge, caper, and cactus are typically found in this region.
  - The plants remain leafless for most part of the year.
  - **Babul, Acacia, Kokko, Khair, Khajuri, Ber, Neem, Khejri, Palas,** etc.are common species of the forests.

Hence, option (d) is correct.

74. (b)

Explanation:

Abhors	Mongolians living in the Assam region
Bedouins	Wandering tribe of Arabia and North Africa. **Hence, pair (1) is correctly matched.**
Hottentots	Pastoral nomads of south-west Africa
Magyars	Inhabitants of Hungary
Masuds	Tribe living in Waziristan (Pakistan)
Maoris	Natives of New Zealand

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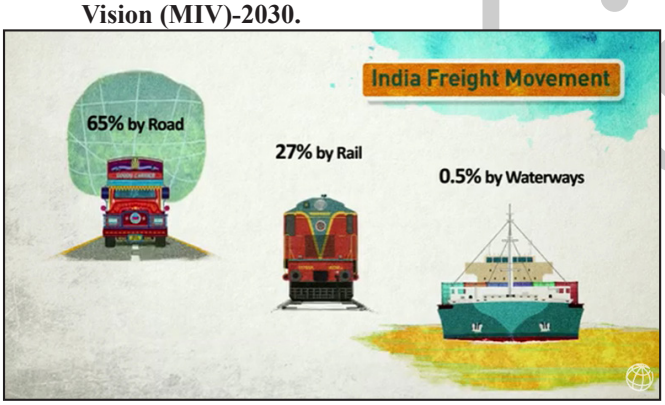
Moor	A mixed tribe of Arab and Berber" people of **Morocco. Hence, pair (2) is NOT correctly matched.**
Red Indians	Original inhabitants of **North America;** (named so by Columbus who thought that he had discovered India) **Hence, pair (3) is NOT correctly matched.**
Todas	Natives of Nilgiri Hills
Zulus	People living in South Africa; belonging to the Bantu family. **Hence, pair (4) is correctly matched.**

75. (d)

Explanation:

- Inland water transport refers to the transportation of people, goods, and materials via waterways such as **rivers, canals, lakes, and other navigable bodies of water** that are located within a country's boundaries.
- IWT is the **most economical mode of transportation,** especially for bulk cargo like coal, iron ore, cement, food grains and fertilizer. Presently, it remains **underutilized at a share of 2% in India's modal mix.**
- The inland waterways can play a crucial role in realising Prime Minister's vision of making India a **zero-carbon emission country by 2070.**
- Government intends to increase the share of Inland Water Transport (IWT) to 5% as per **Maritime India Vision (MIV)-2030.**



Hence, Statement-I is incorrect but Statement-II is correct.

76. (a)

Explanation:

- Shifting cultivation is practised in the **thickly forested areas of Amazon basin, tropical Africa, parts of southeast Asia and Northeast India.** These are the areas of heavy rainfall and quick regeneration of vegetation. A plot of land is cleared by felling the trees and burning them. The ashes are then mixed with the soil and crops like maize, yam, potatoes and cassava are grown. After the soil loses its fertility, the land is abandoned and the cultivator moves to a new plot. Shifting cultivation is also known as '**slash and burn' agriculture.**
- Shifting cultivation is known by different names in different parts of the world:

Name of Shifting Cultivation	Region
Milpa	Yucatan and Guatemala
Roca	Brazil
Chetemini	Uganda, Zambia and Zimbabwe
Caingin	Philippines
Taungya	Myanmar
Chena	Sri Lanka
Ladang	Java and Indonesia
Tamrai	Thailand
Humah	Java and Indonesia

Hence, option (a) is correct.

77. (b)

Explanation:

- **Brazil** is the world's **largest coffee producer.** It is not a new development, as Brazil has been the highest global producer of coffee beans for over 150 years. Vietnam is the second largest coffee producing nation in the world. Ethiopia is the geographic home of Arabica coffee, the most popular beans worldwide. Ethiopia produces large volumes of coffee beans every year. **Hence, statement (1) is correct.**
- **China** produces over 2 million tons of tea, making it the world's largest producer of tea. India comes in second on this list at a tea production rate of 1.2 million tons.
- **Thailand** compared to all the countries in the world, produces more natural rubber than anywhere else. Indonesia is close behind Thailand in rubber production. **Hence, statement (3) is correct.**
- **China** produces the most tea in the world. India produces 1.2 million tons of a tea, and over half of it remains in the country to be consumed by its citizens.

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Kenya produces 432,400 tons of tea, making it one of the most tea producing countries and the top exporter of black tea.

- **India** comes in **second on this list** at a tea production. **Hence, statement (2) is NOT correct.**

78. (d)

Explanation:

- Industrial locations are complex in nature. These are influenced by the availability of many factors. Some of them are raw material, land, water, labor, capital, power, transport, and market.
- For ease of convenience, we can classify the location factors into two: geographical factors and non-geographical factors.
- **Geographical Factors**
  1. **Raw material:** Availability of natural resource that can be used as raw material.
  2. **Technology:** To turn the resource into an asset with value.
  3. **Power:** To utilize the technology.
  4. **Labour:** Human resource in the area who can function as labor to run the processes.
  5. **Transport :** Road/rail connectivity.
  6. **Storage and warehousing.**
  7. Marketing feasibility.
  8. Characteristics of land and soil.
  9. **Climate.**
  10. Precipitation and water resources.
  11. Vulnerability to natural resources
- **Non-geographical Factors**
  1. **Capital investment.**
  2. Availability of loans.
  3. Investment climate.
  4. Government policies/regulations.
  5. **Influence of pressure groups**

Hence, option (d) is correct.

79. (a)

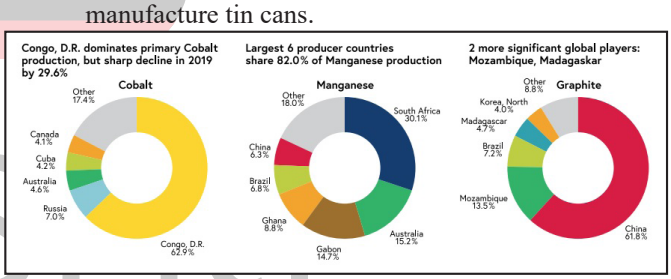
Explanation:

- India's demographic dividend refers to the demographic advantage the country possesses due to its large and youthful population. With over 65% of the population below the age of 35, India has a significant working-age population.
- This demographic structure can boost economic growth, provided adequate education, skill development, and job opportunities are created. Harnessing this dividend involves investing in education, healthcare, and skill training to enhance the productivity of the workforce.
- Share of India's working age population to total population will reach its highest level at **68.9%** by 2030. **Hence, statement (1) is correct.**
- By the year 2030, India's dependency ratio is projected to reach its lowest point at **31.2%. Hence, statement (2) is NOT correct.**
- With a relatively young population (**median age of 28.4 years**), India not only gets a competitive advantage in terms of workforce but also an opportunity to unleash the consumption power of a young population.

80. (a)

Explanation:

- **South Africa** is the world's largest producer of manganese by a long shot.
- While the steel industry is the primary end user of manganese metal, consuming it as an alloy to enhance the strength and workability of the key construction material, manganese is also mixed with aluminum to manufacture tin cans.



Hence, option (a) is correct.

81. (a)

Explanation:

- **Quantum technology does not harness the principles of classical physics;** instead, it leverages the principles of quantum mechanics. **Hence, statement (1) is NOT correct.**
- **Quantum technology relies on quantum bits (qubits),** which can exist in multiple states simultaneously due to the principles of superposition and entanglement. **Hence, statement (2) is correct.**
- Quantum technology is not primarily focused on improving the efficiency of traditional combustion

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engines and fuel-based transportation. It has a broader scope, including areas such as quantum computing, quantum communication, and quantum sensing. **Hence, statement (3) is NOT correct.**

82. (c)

Explanation:

- **Water is an exception to the general rule** that substances contract when they solidify. **Water expands upon freezing,** leading to a **lower density in the solid state** compared to the liquid state. This property is crucial for the survival of aquatic life in cold environments. **Hence, statement (1) is correct.**
- The **maximum density of water occurs at approximately 4 degrees Celsius.** As water cools from higher temperatures to 4 degrees Celsius, it contracts and becomes denser. **Hence, statement (2) is correct.**
- However, below 4 degrees Celsius, water expands as it freezes. This property contributes to the buoyancy of ice on liquid water, as **ice is less dense than liquid water.**
- Additionally, **Water is a dipolar molecule** because it has a positive and negative pole. This is due to the uneven distribution of electrons within the water molecule. The chemical formula for water is H2O, which is two hydrogen atoms attached to one oxygen atom.

83. (d)

Explanation:

- **Chemicals are added to food for** :
  - (i) their preservation,
  - (ii) enhancing their appeal, and
  - (iii) adding nutritive value in them.
- **Main categories of food additives are** as follows:
  - (i) Food colours
  - (ii) Flavours and sweeteners
  - (iii) Fat emulsifiers and stabilising agents
  - (iv) Flour improvers - antistaling agents and bleaches
  - (v) Antioxidants
  - (vi) Preservatives
  - (vii) Nutritional supplements such as minerals, vitamins and amino acids.
- **Except for chemicals of category (vii), none of the above additives have nutritive value.** These are added either to increase the shelf life of stored food or for cosmetic purposes. **Hence, option (d) is correct.**

84. (c)

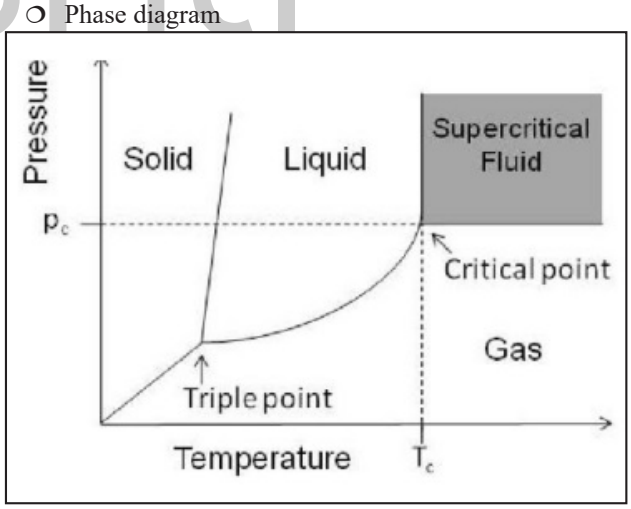
Explanation:

- According to **Newton's law of gravitation,** gravity is directly proportional to the product of the masses of two objects and inversely proportional to the square of the distance between their centers. So**, gravity indeed gets stronger when two objects have more mass and are closer. Hence, statement (1) is correct.**
- The **escape velocity from a celestial body depends on its mass and radius.** A higher mass and smaller radius lead to a **higher escape velocity,** as mentioned in the statement. **Hence, statement (2) is correct.**
- Gravitational potential energy is indeed a type of energy related to gravity, and it is always **negative.** This is because the reference point for gravitational potential energy is often chosen to be at an infinite distance from the massive object, and as an object moves closer, its gravitational potential energy decreases, leading to a negative value. **Hence, statement (3) is correct.**

85. (a)

Explanation:

- According to the **phase diagram of a substance,** an increase in pressure leads to an increase in the boiling point of a liquid. This is because higher pressure makes it more difficult for the molecules in the liquid to escape into the vapor phase. **Hence, statement (1) is correct.**
- The **presence of impurities usually raises the boiling point of a liquid.** This phenomenon is known as **boiling point elevation.** The reason behind this is that the impurities disrupt the regular arrangement of molecules in the liquid, making it harder for them to escape into the vapor phase. **Hence, statement (2) is NOT correct.**
- Phase diagram



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86. (c)

Explanation:

- **Plasma is considered the fourth state of matter (After Solid, Liquid and Gas),** and it **occurs at very high temperatures** when atoms are ionized, meaning electrons are stripped away from the atoms, resulting in a mixture of positively charged ions and free electrons. **Hence, statement (1) is correct.**
- **Compact Fluorescent Lamps (CFLs)** contain a small amount of mercury vapor. When an electric current passes through the mercury vapor, it ionizes the gas and forms plasma.
- The **ultraviolet (UV) light** produced by the plasma then interacts with the phosphor coating inside the CFL, causing it to emit visible light. Therefore, the **presence of plasma is essential for the glow of a CFL tube. Hence, statement (2) is correct.**

87. (b)

Explanation:

- The **acidity or alkalinity** of a substance is often measured by its pH. **A pH value below 7 indicates acidity,** while a **pH value above 7 indicates alkalinity.** Let's consider the acidity of the listed liquids:
- **Milk:** Milk is slightly **acidic,** with a pH typically ranging from **6.4 to 6.8.**
  - It contains lactic acid, which contributes to its mildly acidic nature.
- **Blood:** Blood is slightly **basic,** with a pH range of about **7.35 to 7.45.**
  - It is slightly alkaline.
- **Sea water:** Seawater is **alkaline,** with a pH ranging from **7.5 to 8.4.**
  - It is considered basic rather than acidic.
- **Wine:** Wine is **acidic,** with a pH that can range from about **2.8 to 4.0.**
  - The acidity is due to the presence of tartaric acid, citric acid, and malic acid.
- **Coffee:** Coffee is also **acidic,** with a pH ranging from around **4.8 to 5.0.**
  - The acidity in coffee is attributed to various acids, such as chlorogenic acids. **Hence, option (b) is correct.**

88. (c)

Explanation:

- **Ozone** is a **colourless gas** commonly known as the thick layer covering Earth and protecting us from the sun's rays.
- Since the late 1800s, **Ozone or O_3** has historically been used to disinfect drinking water. More recently, it has evolved to have new uses in the food industry as a food processing method.
- It is a **powerful oxidizing agent,** and it is used as a germicide and disinfectant. Its ability to react with and destroy microorganisms makes it effective in water treatment and air purification. **Hence, statement (1) is correct.**
- It is used as a **bleaching agent** in various industries. For example, in the paper and textile industries, ozone can be used to bleach substances without the use of harsh chemicals. **Hence, statement (2) is correct.**
- Ozone can be used in **chemical processes to synthesize other chemicals.** For instance, it may be employed in certain reactions to produce specialty chemicals. **Hence, statement (3) is correct.**

89. (c)

Explanation:

- **COVID-19 is** known to create a severe immune reaction in which the body releases too many cytokines into the blood too quickly.
- This response, called a cytokine storm, is at the root of the multiorgan injury, starting with the lungs, that leads to critical illness and death from SARS-CoV-2.
- **Cytokine storm and cytokine release syndrome (CRS)** refer to excessive immune system activation resulting in an uncontrolled release of cytokines, signaling proteins that regulate immune responses.
- This overreaction can lead to severe inflammation, tissue damage, and, in extreme cases, organ failure. Common triggers include infections and certain medical treatments, such as **immunotherapies.**
- **Cytokine storm and cytokine release syndrome** are life-threatening systemic inflammatory syndromes involving elevated levels of circulating cytokines and immune cell hyperactivation that can be triggered by various therapies, pathogens, cancers, **autoimmune conditions,** and monogenic disorders. **Hence, option (c) is correct.**

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90. (b)

Explanation:

- **Transcription Activator-Like Effector Nucleases (TALENs)** are **artificial restriction enzymes that can cut DNA at any desired sequence.** They are **used in biological research and genetics.** TALENs are known to function in a variety of host systems, including bacteria, yeast, plants, insects, zebrafish, and mammals.
- **TALENs are generated by fusing DNA** binding domains of transcription activator-like (TAL) effectors to DNA cleavage domains. They fall in the middle in terms of difficulty and cost compared to other genome editing techniques. TALENs recognize single **nucleotides**.
- **Zinc-finger nucleases (ZFNs)** are artificial restriction enzymes that are used as gene-targeting tools. They are created by fusing a zinc finger DNA-binding domain to a **DNA-cleavage domain.** ZFNs can be engineered to target specific DNA sequences within complex genomes. **Hence, option (b) is correct.**

91. (d)

Explanation:

- **Carbohydrate digestion begins in the mouth** with the action of salivary **amylase**. In the stomach, the digestion of carbohydrates is temporarily halted due to the acidic environment, and it resumes in the small intestine. **Hence, statement (1) is NOT correct.**
- **Bile is produced by the liver and stored in the gallbladder.** It is released into the small intestine to aid in the emulsification and digestion of fats.
- **The pancreas produces pancreatic juices** containing enzymes that further help in the digestion of fats, proteins, and carbohydrates. **Hence, statement (2) is NOT correct.**
- **The majority of nutrient absorption takes place in the small intestine,** where the final stages of digestion occur, and nutrients are absorbed into the bloodstream through the walls of the small intestine.
- The large intestine primarily absorbs water and electrolytes, playing a crucial role in forming and expelling feces. **Hence, statement (3) is NOT correct.**

92. (b)

Explanation:

- **Rabies is caused by the rabies virus,** which belongs to the genus Lyssavirus. **Hence, statement (1) is correct.**
- Rabies is primarily transmitted through the saliva of infected animals, usually through bites.
- It is not transmitted through water or food. **Hence, statement (2) is NOT correct.**
- **Rabies is a highly fatal** viral infection. Once clinical symptoms, such as neurological issues, appear, the disease is almost universally fatal.
- The virus attacks the central nervous system, leading to neurological symptoms and, ultimately, death. **Hence, statement (3) is correct.**
- This underscores the importance of prompt medical intervention and post-exposure prophylaxis (PEP) in case of potential exposure.
- Initial symptoms include fever, headache, and discomfort at the site of the bite, progressing to neurological signs like agitation, confusion, paralysis, and hallucinations.

93. (b)

Explanation:

- The **Bio-Medical Wastes Management Rules** have been notified under the **Environment Protection Act, 1986. Hence, statement (1) is NOT correct.**
- Some key highlights of Bio-Medical Wastes Management Rules are given below:
  - The **rules mandate a barcode system for bags and containers** containing bio-medical waste, this will restrict the entry of waste in the illegal recycling market by taking the waste. **Hence, statement (2) is correct.**
  - The purview of the rules has been expanded to include vaccination camps, blood donation camps, surgical camps and other healthcare activities.
  - Under the rules, **bedded hospitals will get automatic authorisation** while there would be a one-time authorisation for non-bedded ones.
  - The rules **mandate pre-treatment of lab waste, blood samples, laboratory waste, microbiological waste and blood bags** through disinfection or on-site sterilisation as prescribed by WHO and NACO.
  - The rules **mandate training and regular immunisation of all healthcare workers.**

94. (d)

Explanation:

- **Tianhe-2, or TH-2,** is a supercomputer located in the National Supercomputer Center in **Guangzhou, China.**

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It was built by the National University of Defence Technology in China. The name Tianhe-2 translates to **"Heavenriver-2"** or **"Milky Way 2". Hence, pair (1) is NOT correctly matched.**

- **Fugaku is a petascale supercomputer located at the Riken Center for Computational Science in Kobe, Japan.** It was developed jointly by Fujitsu and RIKEN. The supercomputer was completed in 2021 and is available for use by researchers and users in academic and industrial fields. **Hence, pair (2) is NOT correctly matched.**
- **Summit is a supercomputer developed by IBM and NVIDIA** for the Oak Ridge Leadership Computing Facility (OLCF) at the Oak Ridge National Laboratory in **Tennessee, USA.**
- It's the world's most powerful supercomputer, with a processing power of 200 petaflops. **Hence, pair (3) is NOT correctly matched.**

95. (c)

Explanation:

- The **Turing Test** is a method of determining **if a machine can exhibit human intelligence.** It was originally called the imitation game by **Alan Turing** in 1950. The test is named after **Turing, an English computer scientist, mathematician, cryptanalyst, and theoretical biologist.**
- The Turing Test **involves a human interrogator who must distinguish between a computer and a human** subject based on their answers to questions. The machine has demonstrated human intelligence if it can engage in a conversation with a human without being detected as a machine.
- The first artificial intelligence to pass the Turing Test was a program called Eugene Goostman. The program was developed by Turing and tasked with persuading 30 human interrogators of its humanity. **Hence, option (c) is correct.**

96. (c)

Explanation:

- **Solids are packed together tighter than liquids and gases,** hence sound travels **fastest in solids.** The distances in liquids are shorter than in gases, but longer than in solids. Liquids are denser than gases, but less dense than solids, so sound travels second fast in liquids. **Hence, statement (1) is correct.**
- In general, the **speed of sound increases with an increase in temperature.** This is because sound waves travel faster in warmer air, where the air molecules are moving more rapidly. **Hence, statement (2) is correct.**
- Unlike light, sound can travel through a medium, including solids, liquids, and gases. However, sound cannot travel through a vacuum because **it requires a medium for transmission. Hence, statement (3) is correct.**

97. (c)

Explanation:

- At what most people think of as normal temperatures, all materials have some amount of electrical resistance. **Hence, statement (1) is correct.**
- This **means they resist the flow of electricity in the same way a narrow pipe resists the flow of water.** Because of resistance, some energy is lost as heat when electrons move through the electronics in our devices, like computers or cell phones.
- For most materials, this **resistance remains even if the material is cooled to very low temperatures.** The exceptions are superconducting materials.
- **Superconductivity** is the property of certain materials to conduct direct current (DC) electricity without energy loss when they are cooled below a critical temperature (referred to as Tc). These **materials also expel magnetic fields as they transition to the superconducting state. Hence, statement (2) is correct.**

98. (b)

Explanation:

- Carrying capacity is a dynamic concept influenced by a multitude of factors, reflecting the intricate relationship between living organisms and their environment. It is a contributary factor for origin and evolution of life on earth.
- The carrying capacity is the maximum population size that an environment can sustain indefinitely without causing long-term degradation. This aligns with the ecological concept that ecosystems have a limit to the number of individuals they can support over the long term. **Hence, statement (1) is correct.**
- Carrying capacity is indeed influenced by external factors such as resource availability and environmental conditions.

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- It is not solely dependent on the species' reproductive strategies; rather, it considers a holistic interplay of biotic and abiotic factors. **Hence, statement (2) is NOT correct.**
- An ecosystem with a higher carrying capacity has the potential to sustain a larger population of a species.
- This is because a higher carrying capacity generally signifies more abundant resources and more favourable environmental conditions for the species. **Hence, statement (3) is correct.**

99. (b)

Explanation:

- **Dispersion of light** occurs when white light is separated into its different constituent colours because of **refraction** and **Snell's law.** White light only appears white because it is composed of every colour on the visible spectrum.
- Although they are very close, the index of refraction for each colour is unique in non-vacuous materials. These unique indices cause each wavelength to follow a different path. **Hence, statement (1) is correct.**
- The formation of a rainbow is linked to **the dispersion of light.** Water droplets are roughly spherical in nature and contain water with a refractive index that enables light to refract.
- When sunlight (white light) strikes water droplets suspended in air, it refracts and spreads into its constituent colours through dispersion. When sunlight touches a water droplet (at some particular angle) the light gets **refracted** and **dispersed.**
- Later, the refracted light undergoes **total internal reflection,** which causes the light rays to fall on the front side of the droplet and emerge from the back. **Hence, statement (3) is correct.**
- An orange or red Sun in the early morning or late evening is a sight to behold. The sky takes on these vivid hues due to a phenomenon called **Rayleigh scattering. Hence, statement (2) is NOT correct.**

100. (c)

Explanation:

- Infrared waves are produced by hot bodies and molecules. This band lies adjacent to the low-frequency or long-wavelength end of the visible spectrum. Infrared waves are sometimes referred to as heat waves.
- Electronic devices (for example semiconductor light emitting diodes) also **emit infrared** and are widely used in the **remote switches** of household electronic systems such as TV sets, video recorders and hi-fi systems. **Hence, statement (2) is correct.**
- Snakes can detect infrared waves, and the 'visible' range of many insects extends well into the ultraviolet. **Hence, statement (1) is correct.**
- Welders wear special glass goggles or face masks with glass windows to protect their eyes from large amount of UV produced by welding arcs. Due to its shorter wavelengths, UV radiations can be focused into very narrow beams for high precision applications such as LASIK (Laser assisted in situ keratomileusis) eye surgery.
- UV lamps are used to kill germs in water purifiers. Ozone layer in the atmosphere plays a protective role, and hence its depletion by chlorofluorocarbons (CFCs) gas (such as freon) is a matter of international concern.
- X-rays are used as a diagnostic tool in medicine and as a treatment for certain forms of cancer. Because X-rays damage or destroy living tissues and organisms, care must be taken to avoid unnecessary or over exposure. **Hence, statement (3) is correct.**

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